WESTERN

FRUIT-GROWER

1902

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Volume Eleven JANUARY 1902 Number One

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.
ST. JOSEPH, MO.

Fighting Insects in the Orchard

A Practical Grower Tells of His Methods

AFTER an experiment covering the past three years of picking up and disposing in some way of fallen fruit in our orchards, we find that our fruit becomes better and better each year, and our faith in spraying as the sole preventive of insect and fungus pests considerably lessened. Yet we do not decry spraying, but on the contrary we most heartily believe in it, and practice it. As a result of our observations, however, we are more and more of the opinion that where both spraying and removing the fallen fruit are thoroughly done that the latter is of very near as much benefit as the former. We believe that all such stuff should be hauled off to some creek or other body of water until the fruit attains sufficient size to be merchantable, after which the receipts from sales will about cover the cost of picking up and disposing of it. We figure that if the returns from sales balance the expenses we realize a good profit in the increased quality of our No. 1 fruit. Spraying alone will not do, but every way of destroying the insects and fungi that is practical should be employed. We intend to try banding our trees in the future, and have no doubt that this will prove beneficial. If those who pick their apples and pile them on the ground in the orchard will cover the piles with burlap or any other old cloth they will be astonished to see the number of worms that will collect on the under side of the cloth. Thousands of worms could be destroyed by dipping these rags in boiling water every few days. These worms will also be found in considerable numbers around the hoops and between the staves of barrels in which apples have been stored for the winter, and they can also be destroyed with boiling water. As evidence that this work pays we submit the fact our fruit always sells at a premium—this year of from 50 to 65 cents per barrel, and the proportion of firsts to seconds and culls is greater than it used to be. JOHN BRAZELTON & SONS.

Mr. Brazelton's experience in fighting insects is in harmony with that of many other successful growers. He who depends on spraying alone to rid his orchard of insects will probably not have his expectations realized. Great stress is laid on the destruction of breeding places for insects in the pupa state. That this treatment of an orchard will pay is proven by the experience of the growers who wrote the article above. The illustration shows a Jonathan tree planted in spring of 1890. The apples in the baskets are the seconds and culls, the latter the smaller quantity; the two and a half barrels are the apples of first grade, very closely culled. Fully 95 per cent of the crop was salable apples, and the crop was a very profitable one. Messrs. Brazelton had fruit on exhibition at both the Missouri and Kansas State Horticultural meetings, where it was much admired on account of its perfect quality and very high color.—Ed.)

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Raspberry
Blackberry
Dewberry
....Plants

Grape Vines, etc.

100 Varieties of Strawberry Plants, all the Best, Old and New. Our Plants are the Heaviest we ever grew. Rains since July 28 have been sufficient for perfect development of Plants. All our fields are under mulch which insures them against damage by severe weather. . . . . .

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New Cardinal Raspberry

The Hardiest and Most Perfect of all.

100,000 one year Asparagus Plants--just a little the best plants you ever saw

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Has for more than thirty years been growing, testing and disseminating that which is proven best for our soil and climate.

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Contain a vast number of varieties, showing the comparative merits; and in Ornamentals many fine specimens such as cannot be found elsewhere in the state.

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SEEDLESS grafted Persimmons, large fruit, ripe before frost.

DECIDUOUS CYPRESS—Specimens here 25 years, never injured by drouth or cold.

JAPAN KOELREUTERIA—Fern-leaved, "Golden Rod Tree."

TAMARIX—Both tree and shrub, perpetual flowering.

RUSSIAN OLIVE—Silvery foliage, sweet flowers, withstands cold or drouth.

CATALPA BUNGEI—Hardy Umbrella tree. (Colored plates of last three at 5c each.)

EVERGREEN TRAILING MEMORIAL ROSES for Cemetery or rockery; and the largest assortment of

ORNAMENTAL STOCK in trees, shrubs, roses, herbaceous plants, etc. Everything for private or public Park

CARDINAL RASPBERRY—The unusual trying year past, has given added testimony that it is the hardiest and most profitable of all.

A FULL LINE of Standard and New varieties of fruit trees and plants for Home and Commercial Orchards.

CORRESPONDENCE INVITED. Estimates furnished. Plans drawn. Lists free! Agents Wanted!

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an especialty fine lot Fay's Prolific. **Blackberries,** root cutting plants, the lsrgest and best stock we ever offered. **Strawberry Plants,** a very large stock for Spring Shipment. Everything at as low prices as high grade stock can be grown.

Write us for what you want, giving us number, age and grade, and send for our Price List and Descriptive Catalogue.

T. S. HUBBARD CO. **Fredonia, N. Y.**

THE WESTERN
FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.
ST. JOSEPH, MO.

NOTES FROM AN IRRIGATION PLANT

George H. Patch of Wisconsin Tells of the Results of the Past Season's Work—Much to Be Learned by Experience

THE method of irrigating our garden bed of matted strawberries, to which I referred in a former article, was simply to lay the sluice hose along the upper edge of the piece, open a few ports at a time and let the water flood as far as it would in a short time, then open more ports and close the first and so on till the whole strip was watered, then move the hose out onto the plants to the farther edge of the watered strip and repeat the operation till the whole was watered.

A large percentage of the plants first set in this bed died and the remaining ones were allowed to make runners to furnish plants to fill in missing spaces. Through neglect the whole became more or less matted over. We intended to run furrows for irrigating, but it seemed a pity to tear out so many nice plants and it was not done. Next time we'll run the furrows, or rather we'll allow no more beds to mat, so that pickers will have something besides berries to walk on. I mention this method of irrigating because raspberries or other small fruits mulched with straw could be irrigated in this way without removing the straw, by laying the hose on top of the mulch, letting the water sink through and spread under it.

Under the direction of Prof. King about fifteen acres were laid out into ten plats of about one and one-half acres each, the main crops to correspond in size to these plats, which were again subdivided into a total of forty-eight sub-plats. Alternate sub-plats were left unmanured, and part of those manured received twice as much manure as the others. One-half of each sub-plat was irrigated, some of these once a week and some once in two weeks. A laboratory was fitted up in the pump house in which soil samples were analyzed for their water content and their soluble nitrates. Two men were kept busy during the season taking soil cores (in foot lengths, to a depth of four feet, by driving down a brass tube and pulling it up with the soil inside) and conducting the analyses. These soil samples were taken in certain rows and furrows just before each irrigation and at intervals after irrigation and the movements of water and nitrates closely followed. Many hundreds of soil samples were thus analyzed during the summer.

Figure 1—Showing the flow of water thrown by the pump used by Mr. Patch.

I am not in possession of the results of these experiments in detail, and if I were I could not use them in this connection, as the government reserves the right of first publication of its findings. I may, however, state some well known facts concerning the irrigation of sandy lands. In the case of such porous soil and open subsoil (pure sand) as we have to deal with, water passes down rapidly, and if too large an amount is applied there is more or less leaching of the nitrates (plant foods) from the soil into the soil water below and carried through springs into the rivers, where they are mostly taken up by water weeds, or liberated by denitrifying organisms in the water and the nitrogen returned to the air.

Well water—especially in such soils—is therefore very much richer in nitrates than river water, and therefore much better suited to maintaining fertility in the soil, as a part of the nitrates which have been leached out of the soil may be pumped up and returned to it in a form all ready for plants to use. We get better results from our garden irrigation with well water than from our field irrigation with river water, due partly, no doubt, to leaching in the field by applying too large quantities of water, and partly to the difference in nitrate content of river and well water. Where conditions are favorable, therefore, the well and windmill or other suitable power cannot be outdone for small areas, and I am not sure that many wells and small systems of irrigation may not be preferable to one large plant using river water on a large area, in many cases, especially where there is no river at hand.

In case an engine or horse power is used to pump from a well, hose may be attached directly to the pump and the water allowed to run into furrows. But with a windmill a pond is necessary to accumulate water enough to pay to attend to running it. Wind is too unsteady a power to allow it to pump directly into furrows, as it would require constant attention to secure an equal and economic distribution of water.

The muck soil of swamps and marshes which fringe many of our rivers is made up largely of decomposed water weeds and grasses, the accumulation of ages, in which much of the nitrogen, which would otherwise have been carried to the sea, has been rescued and stored up. The river from which we pump is fringed by such a deposit, two feet deep and several acres in extent between our pump and the river bed. It occurred to me that it would be possible to stir much of this muck (made soft by partial overflow from a mill pond below) into the water and pump it up onto the land, and thus add humus to the sand and upon which the upland bacteria could work, gradually making the stored nitrogen available for plant-food.

We fitted out our engineer with hip-high rubber boots and a six tined fork and had him stir mud when not needed at the engine. We found the mud made the hose more nearly water tight and that it did not settle in the hose as we feared it might, nor in the furrows except the most level portions, where it gathered to a depth of one-fourth inch or more. This is then cultivated into the soil. Strawberry ground treated thus is becoming darker in color and plant growth more vigorous than on those portions where no muck settles. It will be necessary to add potash and phosphate fertilizers to make a well balanced soil, as muck contains comparatively small amounts of these elements. Prof. King had a measured amount of muck added to a small area of soil, analyzing samples of this soil from time to time to determine how much the development of nitrates was affected by the addition of the muck.

Figure 2—Home made cotton duck hose for conveying the water, showing outlets at head of furrows.

One advantage of having muck stirred into the water is that it silts up the bottom of the furrows, checking the downflow and forcing more water out of the sides toward the plants.

I notice in the "Water Supply and Irrigation Papers" of the United States Geological survey on irrigation in certain sections of California, the statement that their irrigation furrows "are generally less than 300 feet long. This method gives particularly good results on comparatively heavy soils which do not absorb water rapidly. When soils are porous and take water from the furrows freely, the furrows are kept shorter than in heavier soils." Our experience leads us to conclude that to avoid leaching, our furrows should not be more than 200 to 250 feet long, the furrows wide and flat and filled as rapidly as possible, shutting of the water as soon as it will run the length of the furrow—three or four minutes. Toward the close of this season we were crowding the whole flow from the pump—600 gallons per minute—into two or three furrows and rushing it through as quickly as possible. Short furrows, with frequent applications of less than one surface inch of water must be the rule with us.

The increase of yields due to irrigation this year will probably run from 50 to 75 per cent. A number of fine large photographs were taken for the government, illustrating the appliances and methods used in irrigating. We were too busy to secure more than a few kodak negatives.

Prof. King has recently been appointed chief of the new Bureau of Climatology of the Department of Agriculture. Prof. Belz, one of his assistants here, is to go with him to Washington. Prof. A. R. Whitson will conduct the experiments next season.

We had three acres of late potatoes which we were anxious to dig as soon as they were ripe enough. We tested them by digging eighteen hills in an irrigated row, and an equal weight from an adjoining unirrigated row, which required forty-two hills. I have reason to believe, however, that the average difference in the field was not as large as this. I think the average was about eighty-five bushels per acre for unirrigated and 135 bushels for irrigated. The yields from the unirrigated strips were above the average annual yield here. This is the first year of these experiments, and considering the fact that all our crops were planted late on account of unavoidable delays in the spring, the results secured this season should not count for as much as average results of several seasons.

One of the most interesting instruments in use here is the Evaporimeter. A circular galvanized iron tank four feet in diameter and three feet deep is sunk nearly to its top in the ground. From this tank a tube extends a few feet to one side and rises from an elbow to a small platform, on which is a metal box containing clockwork which slowly revolves a vertical roller, on which is fastened a sheet of paper, especially ruled and graduated for the purpose. A lever with a peculiar pen fastened across one end, and on the other end a small wire, on the lower end of which is a float hanging in the tube, is carefully balanced so that the pen swings against the side of the roller. Water is filled into the tank until it is nearly full, raising the float in the tube enough to bring the pen to a certain line on the paper. The box is then locked and left for twenty-four hours, when the pen is again adjusted to the same line by adding as much water as has been evaporated, or taking out, if rainfall has exceeded evaporation. An irregular line on the paper indicates the amount and rate of evaporation and rainfall during the

Figure 3—Water running in furrows between rows of potatoes.

twenty-four hours. Our irrigations are regulated somewhat by the rainfall thus recorded. It does not matter so much what the evaporation from open water may be, if the soil is thoroughly cultivated evaporation from it may be greatly retarded.

Some simple form of rain gauge might be useful to farmers by helping to determine when irrigation is desirable. A simple way of determining when soil needs water is to press some of it in the hand. If it packs in the hand so as to retain the impress of the fingers it is supposed to be sufficiently moist for plant growth, if not, irrigate. This will do perhaps in most cases, but there is so much difference in soils that it will hardly do for a universal rule. There must be sufficient water in the soil so that it will pass by capillarity along the surface of the soil grains toward the little rootlets which are sucking it in. In clay soils the particles are so very small that there is much more grain surface for water to adhere to, so that the water-holding capacity of such soils is much greater than sandy soils, in which the soil grains are large and comparatively few in number.

But, for the same reason, plants can use the water to a lower percentage in sandy soil than in clay soil, since in a sandy soil it is spread over a much smaller grain surface, and the water film on each grain will be thick enough to move by capillarity, while if divided among all the minute particles of clay soil it would be too thin to move. The percentage of water necessary for plant growth in clay may be three or four times as great as in light sandy soil. Both soils would probably appear to be of about the same dryness, the real difference being discoverable by analysis only. Every man should study the peculiarities and needs of his own soil and not follow general rules too closely. G. H. PATCH.

Wants More Articles on Small Fruit Subjects

I like to read the Western Fruit-Grower, I think everybody who grows fruit should read it. But I do believe there is entirely too much stress laid on the culture of the apple. While apples are a good thing, yet we should not be so deeply interested in the culture of the apple as to forget the small fruit question, for it is probably a better paying fruit than apples, and a quicker money maker.

For instance, take the strawberry; nothing pays better, and yet so little is said about it. In reading the discussions of the horticultural meetings I only saw the name of strawberries mentioned twice, and raspberries and blackberries not at all. I feel disgusted when I read the reports of the meetings of the various horticultural discussions and only discussions is about apples and peaches.

I have three acres in peach trees, 18x18 feet each way and a row of raspberries between the rows of peaches. I keep my peach trees well trimmed, so that I can cultivate thoroughly between the peach trees and the raspberry rows. I use stable manure very freely in my orchard and have had good results therefrom. I have only a small number of apple trees, and when I set them out I plowed the ground deep, and I planted strawberries between the apple rows; cultivated them and kept them well mulched with coarse manure, and have had the very best results from my berries.

Last summer, after I had the crop off, I manured the patch heavily and then took a stirring plow and turned strawberries and manure under about eight inches. During August of same year I got some of the very best rotted manure and spread over the same piece again and in September plowed the land again as before. Next spring I will plant to potatoes and the following year I will plant to strawberries again. By this plan I keep my young apple trees well cultivated, and they went through the dry summer in grand shape. My peach orchard and raspberries, blackberries, cherries and plums had same treatment.

I have 1¼ acres in strawberries on an open piece of land and I cultivate them with a five-shovel cultivator before and after picking about once a week, and then follow with a hoe. In the winter I cover them with rotted stable manure about two inches deep, and do not remove the mulching in spring, as the manure is all leached out from the snow and rains and it leaves the strawberries in good shape for the coming summer. I have eight acres in the city limits of Falls City, Neb., and I have no trouble whatever to get all the manure I want hauled on my land in great heaps during the summer for nothing. I have no trouble to sell my fruit right in our home market, as the fruit is always up to date, and I am always very careful in sorting my fruit well, and it is graded thoroughly and each package is marked with my name.

I wish some good experienced small fruit grower would express his way of growing small fruit. I have been only five years in the business and we all know that this is not more than just getting a good start. Lots of the best fruit secrets are not yet discovered. I have noticed that the cold weather which we had in December has killed all the peach buds in my orchard.

LEWIS WM. RODEWALD.

Falls City, Neb.

(In regard to what Mr. Rodewald says we will say that at most of the winter meetings of horticultural societies the orchard fruits are discussed, and at summer meetings small fruits. We shall try to have more matter on subject of small fruits, for they have certainly been neglected.—Ed.)

A Good Orchard

Now that the season is past, records of orchards are coming in. Those who prepare these records do not do so in a spirit of boastfulness, but simply to compare the results of the labor of others and if possible to help each other to succeed. J. W. Clark, Amazonia, Mo., has a small orchard which has made a good record, and which Mr. Clark believes is due to the good care it has received. This orchard was on the place when Mr. Clark purchased it. The orchard is not large, the varieties being chiefly Ben Davis, Jonathan and Winesap. Mr. Clark has kept accurate record of the latter trees, of which there are 103 on one and one-half acres. No careful record was kept of the other varieties, except for the Ben Davis for one year. The Jonathans made a good record in 1900, but no account was kept. In 1897 the Ben Davis trees, nine years set, yielded $117 per acre. But to return to the 103 Winesap trees. The record of these trees follows:

1895	$ 75.00
1896	450.00
1897	90.00
1898	25.00
1899	42.00
1900	18.00
1901	776.20
Total for 7 years	$1,476.20

Average per year for the 103 trees, $210.88.

This shows it pays to care for one's orchard, even though a good crop is not borne every year. Mr. Clark's record is not an unusual one, except for the year 1901.

Regarding his management of the orchard Mr. Clark says:

"I break my orchard thoroughly by plowing both ways; then seed to clover and let it stand until the third year, when I repeat the process. When my trees were small I took the first crop off and let the last one stand for fertilizing purposes and to seed the ground. I also fertilize with barnyard manure. I prune my orchards yearly, keep the tops well opened, cut out all cross limbs, water sprouts, and long, weak, baggy limbs. I spray my trees thoroughly, using Bordeaux mixture in liquid form. Have had good success in spraying and fertilization; would also cultivate thoroughly if it were not that I feared the soil would wash too badly, for the orchard is on the Missouri River hills."

Poor Soils

are made richer and more productive and rich soils retain their crop-producing powers, by the use of fertilizers with a liberal percentage of

Potash.

Write for our books—sent *free*—which give all details.

GERMAN KALI WORKS,
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NOTICE EXTRAORDINARY

Wholesale Prices

For immediate orders for spring shipment, the following FIRST-CLASS

FRUIT TREES

10,000 two-year Ben Davis	10,000 Plum trees
20,000 one-year Ben Davis	8,000 Cherry trees
40,000 other apple trees	10,000 Concord Grape vines
30,000 budded Peach trees	10,000 Blackberry plants
50,000 seedling Peach trees	30,000 Raspberry plants
5,000 Keiffer Pear trees	50,000 Blackberry root cuttings

Several Thousand Apricot, Quince and Russian Mulberry.

Many thousand strawberry plants, forest seedlings, evergreen and ornamental trees, Roses, shrubs and climbing vines.

5,000 Baldwin Cherry trees, the sweetest, largest, earliest and most prolific Morello Cherry, the most hardy and vigorous grower.

Everything healthy and in fine condition. Entomologist's certificate to accompany each shipment.
Good facilities to ship.

The Seneca Nursery

S. J. BALDWIN Seneca, Kansas

FRUIT GROWERS Please Remember

That we have had no drouth in Delaware, but nice, refreshing showers every few days, so that we have the largest supply of large, healthy, heavy-rooted STRAWBERRY PLANTS we ever grew, and the

Price Is Right

We have pleased other readers of the Western Fruit-Grower and can please you, so don't place your order for plants until you receive our catalogue.

Mr. W. M. Gray, Gardena, Calif., writes: "Your plants have always been received in splendid condition and made an excellent growth," and sends us an order of several thousand for spring delivery.

Mr. J. N. Edmundson, Thornburg, Iowa, says: The Sample strawberry plants came in splendid condition and I never saw finer plants.

Jacob Spindler, Jr., Marietta, Ohio, writes: Enclosed you will find my order for plants. The ones I bought of you last year were the nicest I ever received.

Many others write in the same way and have sent their orders for spring delivery.

The Superior Strawberry...

Is as early as Johnson's Early, as firm as Gandy, equal to any variety in productiveness, does well on any soil and should be tried by all commercial growers.

OUR FREE CATALOGUE telling all about it and about fifty other varieties is now ready for mailing, and free to all; send for it today and save money.

W. S. Todd GREENWOOD, DELAWARE

WATERING STRAWBERRIES

The Missouri Station Conducting Some Experiments

DURING the past summer the Missouri Experiment Station at Columbia conducted some experiments in irrigating strawberries. The season was a good one to test the full effects of the artificial application of water, and the results warrant the statement that, for this season at least, the time and money spent in irrigating was a very profitable investment.

The method of applying the water was as follows: The strawberries are grown on the matted row system—that is, the rows are four feet apart and, originally, the plants were about fourteen inches apart in the rows, but were allowed to fill the spaces and form solid mats from a foot and a half to two feet wide. Between the rows were run deep furrows with a single shovel plow and the water allowed to flow down them. Across the upper end of the irrigated plot was a cross ditch which served as a sort of reservoir or feeder for the furrows, thus securing a uniform flow of water down the ditches. At the lower end of the irrigated part was a ditch which ran off to one side to carry away the surplus water. See Fig. 1 for method of applying the water. The strawberries were in several long rows and the irrigated plot was from the middle of the planting, thus embracing all of the varieties and an average of the growth and soil conditions for the field. With the exception of applying the water as described, all of the rows and all of the varieties had exactly the same kind of treatment throughout the season.

The strawberries were irrigated three times during the summer—on May 12, July 23 and August 28. Enough was applied each time to saturate the soil well. This has been a very disastrous season on strawberry plants, both as regards the old plants and the formation of new runners. Under irrigation, the plants made an exceedingly fine, vigorous, luxuriant growth, and it is quite certain that a boundtiful supply of food for next year's crop of fruit has been stored up in the crowns. This is of the highest practical importance to the grower of the fruit, but to the nurseryman, the value of watering lies in the production of runners. As will be seen by reference to Fig. 2, there was a difference as great as between day and night in favor of watering. Where irrigated the runners were finer and more abundant than would have been in the most favorable season, naturally. The part at left of figure 2 shows the appearance under ordinary treatment this season, with not a runner formed and the old plants—many of them—in a dead and dying condition.

Strawberry irrigation was a decided success this season, any way the question may be considered, for the effects were all that could be desired and the cost was trivial when compared with the benefits derived. In our tests we had to use city water, which was paid for by the gallon. The nurseryman, fruit-grower or farmer should have a god well and a windmill for lifting the water. With this outfit water could be piped or conducted through a system of troughs to nearby gardens and strawberry beds. If in the strawberry business on a larger scale it would doubtless pay to bore wells in the plantation to secure the necessary water for irrigation purposes.

W. L. HOWARD.
Missouri Experiment Station.

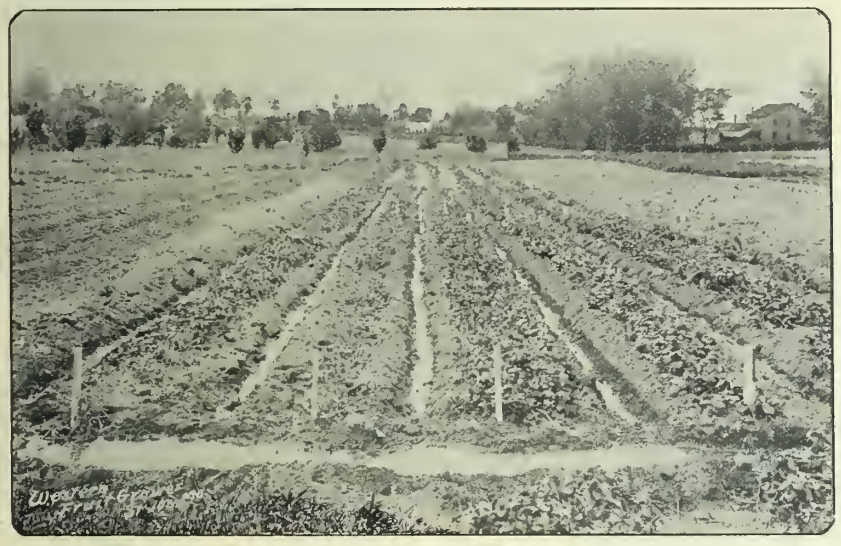


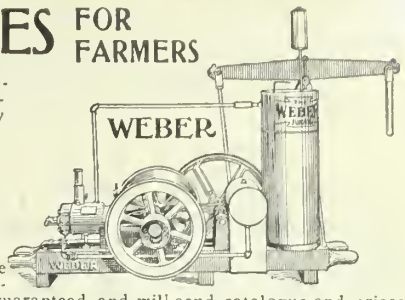
Fig. 1—Method of irrigating strawberries at the Horticultural department of the Experiment Station at Columbia, Mo.

Fig. 2—Cross-sectional view showing a part of the irrigated and non-irrigated strawberry rows. Note vigorous growth of the watered plants on the right. Missouri Horticultural grounds, Columbia.

At the annual meeting of the Indiana State Horticultural Society the following officers were elected: President, W. W. Stevens, Salem; first vice-president, E. B. Davis, Cartersburg; second vice-president, E. M. C. Hobbs, Salem; third vice-president, W. C. Reed, Vincennes; fourth vice-president, J. C. Grossman, Walcottville; secretary, W. B. Flick, Lawrence; treasurer, Sylvester Johnson, Irvington; executive committee, Prof. James Troop, Purdue University, J. A. Burton, Orleans, and H. H. Swain, South Bend. Next year's meeting will take plake at the State House, Indianapolis, the first Wednesday after the first Monday in December. During the summer the State Horticultural Society will meet with the Johnson County Horticultural Society.

GASOLINE ENGINES FOR FARMERS

G. H. Patch, A. S. Perry and others who have described their irrigation plants in The Western Fruit-Grower all use gasoline engines for power. They recommend these engines.



The Weber Junior Engine

is a 2½ horse power engine just suited to this purpose It is the result of 16 years experience in building engines. We have larger ones if you want them, all guaranteed, and will send catalogue and prices to all who ask for them, mentioning The Western Fruit-Grswer.

WEBER GAS & GASOLINE ENGINE CO., Box 116, Kansas City, Mo.

Famous Lee's Summit
APPLE TREES

Famous for their sturdy qualities. Our upland soil produces slow, steady, solid growth. Our wood is very firm of texture and roots are full of vitality and strength, no carrot-like roots, as is produced on trees grown on bottom lands, and soon die.

We have a full line of the commercial varieties. Parties desiring to plant large orchards cannot fail to appreciate the value of our trees on inspection and we would be pleased to correspond with any one desiring to plant something choice and nice and sure to live.

Prices very reasonable. We are extensive growers of **apple** and **pear seedlings** and also make for the commercial trade **root grafts** in large quantities. We have a splendid line of customers all over the United States and we can please those wanting of our stock in quality as well as price.

Our **Keiffer pear seedlings** especially, are attracting great attention and are much sought after. For full particulars correspond with the

JACKSON COUNTY NURSERY CO.
Lee's Summit, Mo.

PEACH TREES, 40,000
PEAR, PLUM, CHERRY and APPLE TREES
MERSEREAU BLACK BERRY, now reduced, get catalogue and prices
$1.00 per dozen by Mail
Cayuga Nurseries Estab. 1847
H. S. WILEY, CAYNGA, N. Y.

SEED CORN THAT PAYS TO PLANT

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Codling Moth and Its Work

Prof. Stedman Tells How to Fight This Terrible Pest

THE codling moth is the most universally distributed of all the injurious insects affecting the apple, and is well known to all, in its larval or worm stage, as the cream-colored worm found near the core of wormy apples and pears.

As common and as universal as this pest is, it is strange that so few people have ever seen or recognized the adult moth. The adult moth is shown natural size in figure 9, f and g, and in figures 3 and 4. The moths have the front wings marked with alternate irregular, transverse, wavy streaks of ash-grey and brown, giving a general grey-chocolate color; while the lower angle at the tip of the wings has a large, tawny-brown spot, with glossy streaks of light bronze or copper color, and are arranged nearly in the form of a horse-shoe. The hind wings are of a light yellowish brown, with the lustre of satin.

The moths first appear in the spring at about the time the apple trees bloom and continue to emerge for about three weeks. They commence to deposit their eggs soon after the blossoms (petals) fall, and at this time usually deposit the egg in the bloom end of the young apple; later in the season they may deposit the eggs at various places on the apple and even in some rare instances on the leaves. The moths deposit their eggs at night and are quite slow in doing so, rarely laying more than one egg on an apple and occupying from one to two weeks in the process of laying all their eggs. It will thus be seen that the egg-laying season of the first brood of moths extends over a period of about a month and a half.

The eggs hatch in a few days after being deposited, and the young larvae may eat of the blossom end of the apples for a short time, usually not more than a day or two at most, and then eat their way trrough the pulp of the apple to the core, around which they feed until full-grown larvae. Whether these apples prematurely ripen and fall or not, the larvae, as soon as full grown, leave the apple by eating a hole through the pulp and out, and crawl about in search of a suitable place to spin their cocoons. This may be in any kind of rubbish or under stones or the loose bark of the tree.

Having made their cocoons, the larvae then change to pupae and in a few days emerge as adults. The adult moths soon appear and the females proceed to deposit eggs for another broods.

From the time the egg is deposited until the adult moth emerges, requires as a rule in this state thirty days, or roughly, one month. North of the Missouri River there are usually three broods in Missouri, while south of the river there are usually four broods each year.

As the adults take so long a time before all emerge in the spring, and as each moth requires so much time to

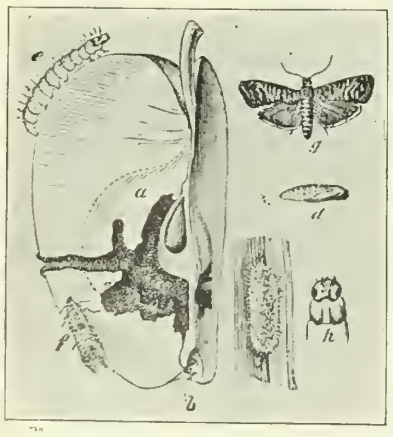


Figure 9.

deposit all her eggs, and, also, as it requires only thirty days for the first eggs to produce adults, it follows that the broods over-lap one another to a considerable extent; and, as a result, we find adults hatching out continually throughout the summer, and eggs being deposited on the apples continually from the time the blossoms fall until cold weather checks further work that year. In some rare and isolated cases, especially where the orchard is small and young and the codling moths recently introduced, one is able to separate the different broods of this pest, but this distinction soon disappears and the broods overlap, as is the almost universal case.

Figure 1, 5a, and 9e shows the larval stage, natural size, and figures 2 and 9d the pupal stage also natural size. Figures 5, 6 and 9b represent apples attacked by the codling moth.

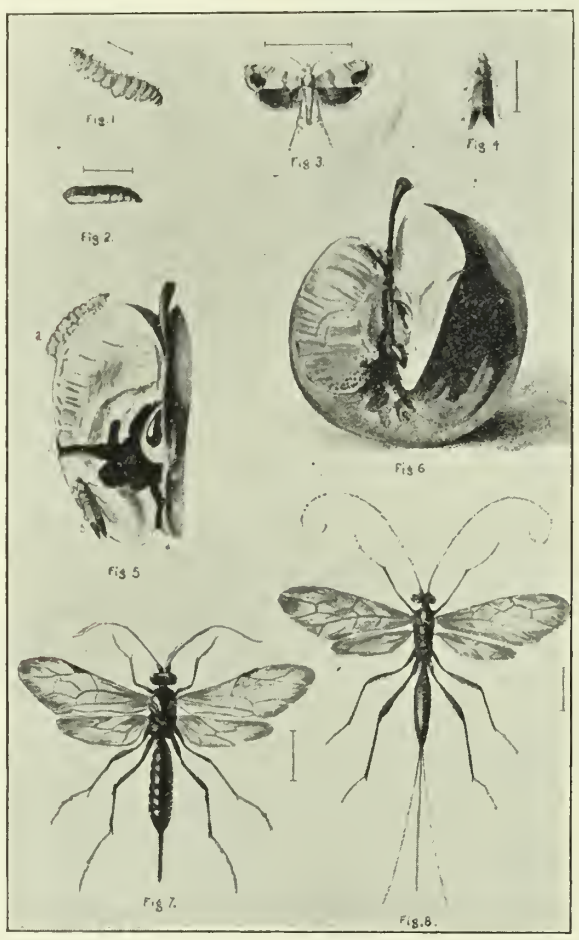
It is not necessary to make any statements in regard to the damage caused by the codling moth, as this is only too well known, not only by the commercial orchardist, but by every one owning an apple tree.

The question now is, what can we do to prevent or lessen this damage and loss?

It is a fact that, in this region of the United States at least, the codling moth can be controlled by spraying with the arsenites. This has been done repeatedly in many orchards, and we are now familiar with the numerous conditions which will render it a success or a failure. No one can appreciate any more than I do the fact that this insect is hard to fight—much more difficult and unsatisfactory than many other injurious insects—yet not so difficult as some others. The reasons why the codling moth is so hard to combat are, that the larvae eat very little before they enter within the apple, and are out of reach, and the adult moths are continually depositing fresh eggs from spring until fall. While poultry in the orchard will do good in devouring some codling moth larvae, and clean cultivation also help to a large extent, and the scraping off of the loose bark and the placing of bands of burlap about the trunks in order to capture the cocoons and allow you to destroy them every week, and, also, while stock roaming in the orchard and devouring the wormy apples as soon as they fall and before the worm crawls out will likewise add considerable to the lessening of the codling moth, yet, after all, spraying with the arsenites is the great remedy and preventive. Fortunate is the apple grower who can and will practice all the methods I have mentioned.

Taking the country at large, the commercial orchardist—the man who is in the orchard business for a living and expects to get it from that source—will probably rely upon spraying, while the general farmer, with but a few acres in apples, will not spray as a rule, but will rely upon the other methods that I have mentioned—the more he uses the better. This is the state of things existing at present, and the reasons are so obvious and sensible that I doubt if we can change them. The average orchardists will not be troubled with poultry and stock enough, and the general farmer will not stop to spray—it comes at his busiest time.

Spraying is more effectual than all the other methods I have mentioned, and it is to be hoped that the day will come when every farmer with a single apple tree, as well as every orchardist, will spray for the codling moth. Where one man controls a large orchard (and we have many such in Missouri) or where all the farmers in a neighborhood spray for the codling moth, as they should do, the results are extremely gratifying and profitable, and wormy apples are not numerous; but where one farmer tries to spray for codling moth while his neighbors' orchard near by is neglected, the results will not be satisfactory. To be sure, he can, by repeated spraying, all summer long, prevent his apples from being wormy, but this would be too expensive and would not pay financially, and hence from a financial standpoint, I could not conscientiously advise that farmer to spray for this particular insect under those conditions. What we want is to get every one in a neighborhood to spray his apples properly for the codling moth and thereby reap a decided benefit.



In spraying for codling moth, we try to kill the first brood only, and if this be done well, there will not be enough escape to cause destructive numbers of the second and third brood. But if our neighbor's neglected orchard be near, the moths from that orchard will lay eggs in your orchard after you are through spraying, and your apples become wormy as a result of his neglect, and you cannot afford to keep up your spraying all summer in order to prevent it. Hence the advantage of having a large orchard or of having your neighbors spray likewise. I think I have now made this matter clear so that I will not be misunderstood. I advise the use of all the methods and means I rave mentioned to lessen the codling moth, and advise every person having either a single apple tree or a million such trees to use them, and if you cannot use but one method, then let it be spraying properly done.

We now come to the subject of spraying for the codling moth. For financial reasons we are compelled to try and kill the first brood of larvae only, and our object must be to give that young worm, as soon as it hatches, a dose of poison with its first meal, and before it has entered the apple and gotten beyond our reach. In order to do this, it is necessary to apply the first spray within a few days—say five days—after the blossoms (petals) fall; then in about eight or ten days after, to spray again, and so on for four (never less) sprayings. If, at any ttime within four days after a spraying, it should rain, it is necessary to spray again at

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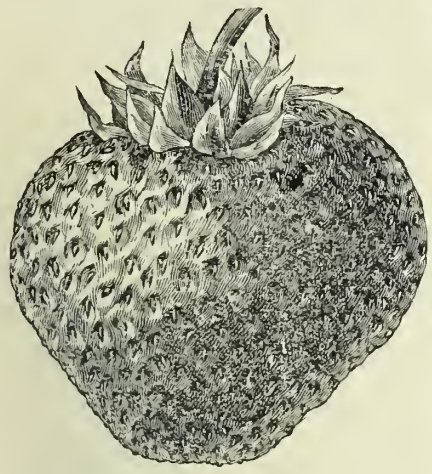

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once and not to count this spraying. You will observe that the idea is to keep the poison on the apple from about the time the blossoms fall and the first larvae are ready to appear until forty days thereafter. This is practically the egg laying period of the first brood of moths, and all others must come from them. You will observe, if you put it in practice, that this forty-day period is about all the spraying for this one insect that you can afford to do from year to year. You will also observe that in some years the rains are so frequent during this spraying period, that they will wash off the poison about as fast as you can put it on, and that when this is the case, you will not have success. But as you can never tell what the weather will be many days ahead, you had better keep up the spraying. It is well to note here that this spraying will also kill most other biting insects, that may be there and cause trouble were it not for the spray for the codling moth.

I wish it distinctly understood that unless you propose to spray exactly as directed, you need not expect good results in combatting the codling moth. And also, that unless you propose to make the FOUR sprayings you must not expect to see good results. One or two sprayings is a waste of time, labor and expense in so far as codling moth is concerned. I know of one man who says he has sprayed for codling moth for fifteen years and never saw any good results and therefore does not believe in spraying; but this man never sprayed but once in a single season—how could he get results when the moth lays through so long a period?

Another point to be carefully noted is: This spraying must be done thoroughly—it is difficult at best to cover the apple with poison and to fill the blossom end also, and only thorough work will accomplish it. It is not necessary to cover a tree so that it will run off on the ground. Use a fine spray, the finer the better, use all the force possible and throw it in a mist on all sides of the tree and from top to bottom. And again, see to it that the mixture in your tank is kept constantly well stirred while spraying. Failure to do this will result in failure to poison the apples, especially if Paris green or London purple be used.

What shall we spray with? Do not use London purple if you can possibly help it; if you must use it use it the same as Paris green. If you can be sure to get good, pure and unadulterated Paris green, and that with not more than 5 per cent soluble arsenic in it, then you will have a good material for the poison, and it can be used as follows: Slake three pounds of fresh stone lime in a little water so as to make a lime paste, mix one pound of Paris green in a little water so it will be thoroughly wet through and free from lumps; stir the lime in (175) one hundred and seventy-five gallons of water and then stir in the one pound of Paris green, and the mixture is ready for spraying.

Should you have trouble with the above—not be able to get pure Paris green— then use arsenate of soda, which you should make as follows: Place two gallons of water in a vessel, and into this two pounds of powered arsenic and eight pounds of sal-soda; indicate on the side of the vessel just where the liquid comes to. Place this on a fire, out of the house, and when it begins to boil, note the time and boil for fifteen minutes, then remove and add enough water to make up for what has boiled away as shown by the mark. This liquid can now be placed in a jug and corked and labeled and placed away in a safe place. To use, slake eight pounds of fresh stone lime and stir it in (140) one hundred and forty gallons of water, and add two quarts of the liquid from the jug, stir and it is ready for spraying. This spraying material has some advantages over the other.

With the above directions carried out, one should, except in those cases indicated, have success in combatting the codling moth, and be financially benefitted by the spraying and other means of checking the cidling moth ravages.

Nature is doing something to help you lessen the number of codling moths. If you will notice the insects enlarged in figures 7 and 8 you will see a picture of ichneumon flies. Note the ovipositors or stings. These two species of insects are busy in your orchards laying their eggs in the codling moths and thereby killing them, since these eggs hatch into grubs that feed on their tissues within. Now note that these ichneumon flies are parasitic on other insects, and sting and lay their eggs in other insects, and never in apples or other fruit, or other parts of plants. Also note that these are the very insects that the moth catcher circulars picture as the "stinging fly," and which they say "sting" your apples, and which are caught in vast numbers in the moth catchers. Let me emphatically warn you again in this connection that these so-called stinging insects do not sting your apples at all, but are a great benefit to you, and that when you use moth catcher traps in your orchard you do yourself great harm by catching these beneficial insects, and furthermore, let me emphatically warn you that the codling moth is not caught in these moth catcher traps or any other trap lantern, except now and then one by accident, and that even though the lanterns did you no harm, they would not and could not do you any good in this codling moth crusade. Do not be fooled by the moth catcher agents or circulars, or by the vast number of small and harmless moths the traps do catch, and which these agents may say are codling moths. Never use moth catchers or other trap lanterns in your orchard for codling moths or to prevent stings in apples or plums or any other orchard fruit. J. M. STEDMAN,

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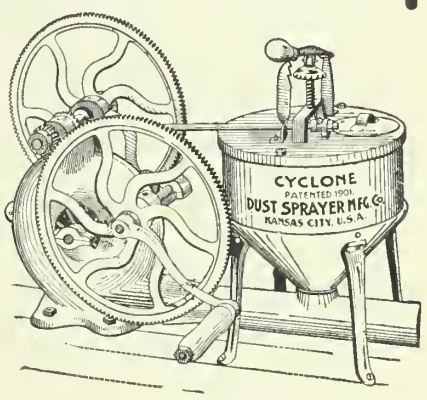

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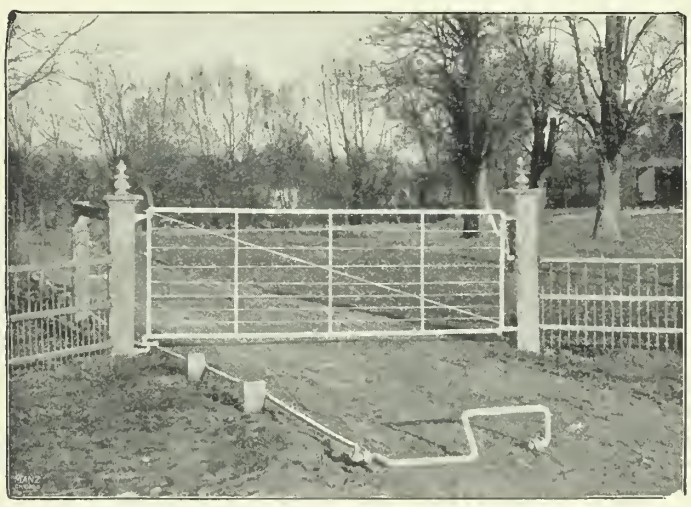

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ST. JOSEPH, MO.

VOLUME ELEVEN. JANUARY, 1902. NUMBER ONE.

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A Retrospect

With this issue the Western Fruit-Grower begins the sixth year of its existence—the first issue appeared January 15, 1897. This publication was started after scores of similar papers had failed simply because there was a general impression that fruit farmers would not support a paper devoted solely to horticulture. From the outset we had faith in ultimate success, and believe we can now say the Western Fruit-Grower is no longer an experiment—it is one of the very best fruit papers in America, and is receiving the support of an increasing number each day. In five years a circulation of 20,000 has been built up, and our subscription list is growing more rapidly at the present time than ever before.

We speak truly when we say this circulation has been possible only through the help of our friends who believed the paper was worthy of support. Our increased circulation has come from the new subscribers sent us by those whose names were already on our list. Our readers and our advertisers are our friends. We have tried to show our appreciation of this service by constantly improving the paper. There is a great difference between the paper we issued five years ago and the one in which this notice appears. The subscription price has remained the same—but the increased circulation has meant a better paper. This improvement will continue, for we count on the continued support of all our readers and advertisers, as well as that of many news ones yet to be secured. We must work together, for the fruit industry is entitled to the best of everything, including the best farm paper published. And we intend that the Western Fruit-Grower shall fill the bill.

We may be pardoned for calling attention at this time to the January issue. Seldom has there appeared a publication with better horticultural information. The report concerning bitter rot, as given in our report of the meeting of the Illinois Horticultural Society, embodies the experience of the best authorities; few persons are as well qualified to speak on the subject as are Dr. Burrill and Prof. Blair, who are there quoted. The article on codling moth tells the story of this very numerous insect so that all can understand it and its work; the treatment prescribed is the best that can be given. The article on canker worm tells about all that need be known to fight this pest which has done so much damage. And what other paper has ever had such practical matter as is published in this issue from J. H. Hale, Roland Morrill, Prof. Blair, Prof. Waugh and others, to say nothing of those with whose writings our readers are familiar—Major Holsinger, Mr. Laird and others? Add to all this the reports of the various horticultural meetings and the other valuable matter which this issue contains, with its splendid list of advertisers, and we guarantee that this one issue alone is worth the price of a year's subscription to any person with even a few fruit trees and plants.

But this is not the end. There must be greater improvement. Our circulation must be increased and the Western Fruit-Grower reach more and more of the farmers who grow fruit. In all this work we ask the co-operation of our readers. We thank them for the great help they have rendered, and promise that we will do our part, and count on them doing theirs. In this issue we tell of some improvements which should be made. They will come in time. The fruit industry is just in its infancy, and the fruit paper which is at the head of the list must attain heights not now dreamed of. No publication, we believe, has the opportunity to occupy this position that the Western Fruit-Grower has, and in our efforts to place it there we ask the continued support of all who are interested in better horticulture.

The new year promises well for our people; may all the hopes be realized and all promises fulfilled. To our many friends, our readers and our advertisers, we wish a very prosperous year. May the year 1902 be a great one for all of us.

WESTERN FRUIT-GROWER.

During the past season, when apple buyers were hunting for fruit in the Middle West, a serious defect appeared in the system of selling fruit, and one which we believe can be corrected. For instance, an apple buyer asked the Western Fruit-Grower for a list of extensive orchardists in a given locality. This was given him, and a visit paid to the section. Upon arrival at each orchard it was found the fruit had been sold, and he was out the expense of the trip, the time and all that, but most of all, he had lost much time which might have been spent in buying the fruit elsewhere. And, again, in some sections, which were not visited by the buyers, fruit was a drug on the market, and it sold for much less than it was worth. To remedy some of these defects, and to get better reports as to crop prospects during the season, the orchardists of New York have formed an organization, and the first year's work was very profitable to its members.

Now, we have a plan to propose to Western orchardists. It has been explained to a number of them, and all have indorsed it heartily. The plan is to get a list of commercial orchardists in Illinois, Missouri, Kansas and Southern Iowa and Southeastern Nebraska. Opposite the name of each orchardist would be given his acreage, varieties, age of trees, etc. From blossoming time to July each year each of these orchardists would send monthly reports as to his prospects for fruit; from August 1 to packing time the reports to be sent each week. The later reports would also be somewhat more comprehensive than the earlier ones; they would read something like this:

"D. A. Robnett, Columbia, Mo.—100 acres, Ben Davis and Jonathan; trees 12 years old; prospects for half crop of fruit. At same station there will be offered, in addition to his crop, 5,000 barrels of apples, mostly Ben Davis. Fruit all unsold at August 15."

As an orchardist sold his fruit, he would send word to this effect, and his name would be checked off.

These bulletins would be circulated among the apple buyers of the country. Each buyer would know where apples were to be had; he could also know about how many apples it would be possible for him to buy in the same vicinity. He would not be in danger of making a long trip to the locality, and then finding the fruit sold. The benefit to the producer would be that his fruit would be listed before all the apple buyers in the country; they could find him and would know what he had to offer, and there would be no complaints that apples were selling too low in any section because of an absence of buyers; the markets would be more nearly uniform for fruit of same quality. Also, upon receiving the bulletins, the grower would know just what the prospects were for fruit elsewhere, and could then set an intelligent valuation upon his crop.

There are many details which will have to be worked out, but this, in the rough, is the plan suggested. The expense of listing the orchards in this bulletin would be slight—perhaps not over $2 a year, and the benefits would be much greater than this in more ways than one. We believe this plan can be made to be a great help to every orchardist and every apple buyer in the apple business. With a good crop of apples in anyone year there will be a lack of buyers in certain localities and too many in others; this was the case this year, when it seemed that everyone was hunting for good fruit. The Western Fruit-Grower will be glad to hear from its readers; if there is sufficient interest we will undertake the work of getting a list of the orchardists and the publication of the bulletins durin gthe season. Let us hear from those interested.

There is a belief among fruit-growers that the management of the World's Fair to be held at St. Louis in 1903 intends to place the departments of agriculture, horticulture, forestry, etc., all under one general head, with superintendents in charge of each sub-division. This is a mistake, and every horticultural society whose attention has been called to this intention has passed strong resolutions against putting horticulture in a department with anything else; the fruit-rowers want a separate department, and they are entitled to one, with the fruit exhibit under charge of an experienced man. The best display of fruit ever made in the world should be made at St. Louis next year, but it will not be unless horticulture is made a separate department. A letter from Elmer Reeves, Waverly, Ia., says that Iowa fruit men hope the fruit exhibit will be in a special department, either in a large building or a specially constructed one. And this is the sentiment of fruit men everywhere, we believe. The exposition management should certainly consult those who will be depended upon to make the exhibit.

Many subscribers have sent in names of friends to whom they wish copies of this issue sent, and accordingly many persons who are not regular subscribers will receive the Western Fruit-Grower for January. To all such we would say that not every issue is as good as this one, nor are they as large. But each month the paper contains from 16 to 32 pages of fresh horticultural matter, and the paper is worth much more than the subscription price, 50 cents a year. We will be pleased to receive their subscriptions, and solicit their help in building up a horticultural paper which shall be worthy the support of all fruit-growers. Send your subscription today.

Arrangements are being made for a convention of general advertisers to be held at Delmonico's, New York, on Wednesday and Thursday, January 29 and 30. An interesting programme, embracing some of the most important questions in the field of advertising, has been prepared, and it is expected that a large number of advertisers from all parts of the country will attend. There will be a banquet on Wednesday evening, at which some of the prominent publishers of the country will make addresses. It is expected reduced railroad rates will be secured.

We ask the pardon of our readers this month because the issue is a little delayed. This was caused by the extra pages and additional work incident to this issue. It has taken much work and lots of time to get the big number in shape, but we believe it is worth waiting for. Isn't it?

Dean Davenport of the Illinois Agricultural College will make an effort to get all Illinois railroads to grant a one-fare rate for all the horticultural and agricultural meetings which will be held by the different societies at the college. It is really a good investment for the companies to make this reduction; anything which tends to improve the condition of the farmers along their lines and to increase his crops is bound to benefit the railroads in many ways. Mr. Davenport, at the late horticultural meeting, cited the fact that the Canadian roads take pleasure in making this concession in rates for all farmers' meetings of this nature, and said he believes American roads will do likewise if the matter is presented in the proper light. Southern Missouri roads likewise appreciate the value of horticultural meetings, and grant a one-fare rate to meetings along their lines. The day should soon come when all railroads will do this.

Elsewhere in this issue we refer to the trip which was made through Southern Missouri by Prof. Stinson of the Experiment Station at Mountain Grove, to illustrate how to make and apply spraying mixtures, and to exhibit the different patterns of pumps. Owing to the very cold weather the program could not be carried out as arranged, but notwithstanding this the trip was a success. The attendance at the meetings, through snow storms and in the midst of a terrible blizzard, shows an increasing interest in the subject of spraying. At every stop the fruit-growers who were present were loud in their praise of the movement, and resolutions were adopted commending Director Stinson for his enterprise. The plan is a good one, and will result in great good. The railway company, which transported the car free, will be benefited in the end by reason of increased fruit shipments. The spray pump manufacturers who made exhibits will reap their reward through orders for their wares, for their pumps were certainly carefully inspected at each place visited, by a class of persons who are intensely interested.

It is doubtful if the subject of orchard cultivation—or any kind of cultivation, in fact—ever received the attention at the hands of farmers which it has at the horticultural meetings of the present season. While the pollen on the corn tassels burned up as soon as the tassel opened and cultivation would avail but little, it is true that cultivation helped to carry the orchards through the drouth, and perhaps the value of cultivation was never more clearly proven. At this time it is well to prepare to cultivate well next season, no matter what the crop. Get implements which will best do the work, and then do it. If there was ever a doubt as to the need of thorough cultivation, it has been removed. This cultivation must vary under different conditions, of course, but in general it is a safe proposition to cultivate.

One of the most gratifying things to the Western Fruit-Grower is the increasing number of letters it receives from its readers asking for sample copies to distribute at various horticultural meetings, in an effort to get new subscribers. During the past month we have received many of these requests for sample copies, and our subscription list will grow, as a consequence. Can you not distribute some samples to advantage, and add a few names to our list? We expect it of you.

At the late meeting of the Missouri State Horticultural Society, Vice-President Moss of the Missouri World's Fair commission made a statement that the commission would co-operate in every way with the society in making a fruit exhibit at the St. Louis exposition next year. It is to be hoped that this promise will be kept, and it is believed it will be. The society should have the privilege of naming the superintendent of this portion of the exhibit, and should be charged with the collection of the fruits. At times when there was little or no money for collecting fruits for exhibits of this class, the horticultural society has always done the work cheerfully, and now that the state is in position to pay for the work, this same society should have the matter in charge. There is no question that the failure of Governor Dockery to appoint the nominee of the horticultural society as superintendent of the fruit exhibit at Buffalo resulted in the state making a poorer showing than Missouri is accustomed to make. Mr. Bell probably worked hard to make the exhibit a success, but without the co-operation of the fruit-growers of Missouri he could do little.

And the fruit-growers felt aggrieved that the gentleman nominated by them, and who was appointed to the position by Governor Stephens, was not retained under the new administration. As a result the Missouri fruit exhibit at Buffalo, after the first of the exposition, was not in keeping with the record the state has made. The display was not nearly so good as was made at the late state meeting. All this should be avoided at St. Louis, and it can be if the state commission will allow the horticultural society to work with it.

Some time ago the Western Fruit-Grower announced that a prize of $10 worth of horticultural books would be given to the writer of the best article or series of articles on subject of irrigation. Since that time we have received a number of excellent articles, and we feel that they have been appreciated. We have decided that those furnished by Mr. Geo. H. Patch, Stevens Point, Wis., are the best, from every point of view, and accordingly we have asked Mr. Patch to select the books he desires from our list. In this connection we wish to thank our friends who have sent notes from their experiences on any subject. It is this interchange of ideas which makes a horticultural meeting—and it also makes a horticultural paper. While the evenings are long let us hear from you. Especially do we desire good articles on small fruits: This is a good time to send them, for there will be many plants put out next spring, and there will be a demand for information.

We have just a word of advice for Western Fruit-Grower readers: Order your nursery stock and your seeds early, as early as possible. There is a great shortage in some kinds of nursery stock, and an unusual demand. Therefore one should get orders in as soon as possible. As an indication of the situation we will say that a Western nurseryman bought a lot of peach trees in Tennessee, to be delivered when demanded. The trees were not dug, and were to be left until spring. A few weeks ago the buyer of the stock received a letter from the Tennessee nurseryman offering just double what he had paid for the stock, and they to be left where they are. The offer was accepted, and the purchaser made 100 per cent on his money. The same situation is true in regard to seeds, and we advise that all orders be sent in promptly.

We have a letter from a reader asking for information as to best methods of fighting canker worm, saying he has tried spraying with poor results. Now, in this issue the best advice which can be given is offered. Spraying will result in killing canker worms, if the poison is properly made and applied and is pure, just as certain as taking poison will kill a human being. Once the canker worms are full grown, however, it is hard to get them to eat enough to prove effective. We suggest that our correspondent try to prevent the worms from climbing the tree, and if any do pass the bands, then spray early.

In a prominent grocery store the other day a gentleman asked for some Grimes' Golden apples, and was told there was none in stock. Knowing there were apples of this variety in storage, and being especially partial to this splendid apple, he asked why this variety was not offered for sale. The groceryman said he wanted to add yellow apples to his stock, but that as soon as the light-colored apples came out of storage and were placed in a steam-heated room they at once turned dark. Score one against the yellow varieties which are expected to supersede Ben Davis.

Peach buds being nearly all killed will have a tendency to check the planting of peaches perhaps, but it is safe to say that notwithstanding this there will be more trees planted next spring than were ever set out before in any one season. Our Iowa friends are apt to have their hopes shattered, however, by the effect of the cold snap in December.

If you appreciate this issue of the Western Fruit-Grower—as we know you do—don't write and tell us of this fact unless you send name of at least one new subscriber. Then we will know of your appreciation without your telling us.

How People will talk about their friends

"They're talking about you, Ben."

As he said this, the old Missouri farmer looked at a rosy-cheeked, smiling fellow sitting on an apple barrel. At the same time it seemed that the said smiling fellow slightly winked an eye, or what should have been his eye, at any rate. Now, this young man was a good-natured fellow; his full name was Benjamin Davis, and each year was made the butt of many jokes, but never once did he resent it. His friends always defended him, however, for he was a good worker, and when all the other fellows failed to produce at harvest time, Benjamin—or Ben, as he was familiarly called—seldom disappointed. Therefore he was held in high esteem by all the farmers.

"They say that there are better fellows than you, Ben," continued the old farmer. "I heard a man say that Jon Athan was decidedly better than you, and another chimed in with a word of praise for that yellow-haired, round-headed rascal, G. Golden. And then there was a new-comer from Michigan who said he knew a fellow 'back home' who could lay it all over you; his name is N. Spy.

"And I want to tell you, Ben, this last fellow made me mad. I know all about that N. Spy. He is the laziest fellow I ever saw; good, strong chap, and is all right in many ways—if he would only do some work. At harvest time we can never depend on N. Spy. He won't do. And then another stranger said something about N. Y. Baldwin. He is really the fellow who is stirring up all the trouble, Ben. He works one season and then rests one. He has met you on market a number of times, and always got a black eye, and now that he cannot down you, is trying to get all these others after your scalp."

But Ben said never a word. He knew enough to keep still.

After waiting a moment, the farmer continued: "You had one friend in the crowd, however. He was Mr. Apple Packer; he said he knew you, and he knew those other fellows, too. He said he liked you, for he knew he could depend on you; that the other fellows were all right for a time, but they were not lasting—they 'played out' too soon. He told of another friend of yours, Mr. Con Sumer. This fellow likes you because you always look so jolly—don't let little things worry you, and if you get caught in a pinch don't get all mashed up about it. You have a lot of friends, Ben, but there are others who don't like you.

"They're talkin' about you."

This conversation took place about the time apples were packed in the fall. The farmer, like many another good soul, thought he was doing his duty to tell Benjamin what had been said about him. But he received no word in reply.

About Christmas time there were other conversations of this nature, but it was noticed that there were fewer persons who condemned Ben; the number had been decreasing ever since autumn, and the old-timers said it was so every year—that Benjamin always had more friends about the first of the year than he had earlier in the season.

One day about March 1, when he had come from town, the farmer again accosted Ben, and this time he felt in good humor—no long face, as was the case when the first conversation occurred.

"I was in town today, Ben, and want to tell you that you have got lots of friends there now. Down at the storage house a man came in and said he wanted some of your fellows. There were a few of the fellows there, and I was real sorry you weren't; you would have enjoyed it so. N. Y. Baldwin was trotted out—or they tried to trot him out, but he was not to be found except after a long search. But oh, my! how sick he was! And G. Golden, I wish you could have seen him. He looked like he had had the smallpox—all marked and scarred, and the man said he couldn't have him about the store, for the gentleman was a storekeeper, Ben. The storage man said something about G. Golden and others being sealded some way. There may have been an accident of some kind, for they were badly scalded, the man said. And then they looked for N. Spy and Jon Athan, but could not get them anywhere. There were other fellows brought out, but the man didn't want any of them. He wanted you, Ben. He said so. He said earlier in the season that idle gossip which was going the rounds scared him, but he knows what he wants now.

"And say, Ben, then the story was out: There are lots of fellows want you now. Do you remember I told you in the fall what some of the people said about you? Well, they have changed their tune now. Those other fellows are not in it. It just did me good to hear what was said about you, and all I could do was to say, 'I told you so.'

"Down in town they're talkin' about you, Ben, but they're not sayin' the the things they said earlier in the game."

And the old farmer chuckled with great satisfaction—for he had known Benjamin a long time.

And as for Benjamin, he just smiled—he always smiles. He had been through the experience before. He knows that along toward spring, when his kind are in demand, the other fellows will all be gone—there will be no Jon Athans, no yellow-headed G. Goldens, no N. Spys, and no N. Y. Baldwins—they will all have quit business. Old Benjamin Davis knows a few things.

They're still talking about him, but he just waits his time, and then sweeps the market—there are none like him, and none to take his place.

Moral: There are several morals to this tale. One is to wait until your time comes, and then talk. But there are others.

J. M. I.

Diversified Farming

A great many persons thought that during last season they would be ruined because the corn crop was not up to the standard. It is hard for the average farmer to realize the possibilities in growing fruits, vegetables, etc., in connection with other farm work. This fact has been impressed upon us lately when we learned of some of the crops which were harvested along the line of the St. Joseph & Grand Island Railway in Kansas and Nebraska. Now, perhaps no section suffered more from the drouth than the section referred to, and the yields which were secured speak volumes for the possibilities of this class of farming.

To start with the poultry business, the Swift Packing Company paid out for poultry along this line, for the first six months of 1901 the following sums:

	Pounds	Av. Price Pd. pr lb.	Amount
January	75,260	.0532	$1,002.13
February	64,310	.0564	3,631.36
March	8,281	.0550	455.86
April	75,073	.0703	5,285.05
May	76,480	.0696	5,321.45
June	71,612	.06	4,299.18
Grnd. Tot. Jan. to Jul.	371,046	.0620	$22,995.03

That is quite an item in a dry season, isn't it? And this is only an indication of what can be done if the proper effort is made.

F. G. Sitler of Axtell, Kan., is not situated in what is known as the peach belt, yet by giving his 16 acres of peaches good care, he received net profits, above all expenses, of $1,000. This isn't an unusual yield, by any means, but it shows the advantage of not having all one's farm in corn—it doesn't pay to have all the eggs in one basket.

Another man who practices diversified farming in Nebraska is W. T. Newcomb of Clay County, who had 30 acres of watermelons. The melons yielded 400 fruits to the acre, averaging about 22 pounds each. The drouth affected the crop, but returns were over $1,200. Thirty acres of sweet potatoes yielded about 1,000 bushels, but they sold for 2½ to 3 cents per pound.

W. H. Boyer & Son, in Thayer County, Neb., had 22 acres of watermelons, from which 20 carloads were sold and about eight cars did not mature. An acre of tomatoes yielded about 200 bushels—ordinarily an acre produces double this amount. Cabbage ordinarily yields six tons per acre, although this season this crop was nearly a failure. Irish potatoes last season yielded only 50 bushels per acre, against an average yield of 200 bushels. Sweet potatoes ordinarily yield bushels per acre, but last season only 95 bushels. Onions as a rule produce 300 bushels to the acre for the Messrs. Boyer. Now, these yields are not extraordinary—but they are profitable. Even with the reduced yields of the past season they were profitable.

These reports are not made with a view of calling attention to any wonderful yields—they are to show what can be done in a section where many of the farmers think only grains and grasses con be grown profitably. The day of smaller farms is coming, and when it does the man who can grow nearly everything he and his family need will be fortunate indeed. There are no peach belts any more, as J. H. Hale says. There are sections where the careful man will succeed, and the reports quoted above show that there are other special crops which can be grown to advantage in this section, and by farmers who are not especially favored in location. There may be no more summers like the last one—we hope there will not be—but there will seldom be a season when the man with the diversified farm will not be better off than his neighbor who grows nothing but grains.

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J. H. Hale Couldn't Come

But He Comments on Proceedings of Missouri Society

WHEN I promised you awhile ago a few notes for January I didn't suppose you were going to hollow about it so and shoo away all your your readers before I could get a word with them, but here is December number with special scare lines and my jig is up and so I "dun quit" before I begin. But to save postage while I am writing, I want to compliment you on your very complete report of the Missouri Horticultural meeting. I wanted mightily to go to the St. Joseph meeting and so I have eagerly read every word of your report, and perhaps now that the meeting is adjourned and no one to call me down, or sass back, I may be permitted to join in the discussion, or rather, say my little say as to various points under consideration.

First, I would like to say a hearty amen to the remarks of President Murray and others in relation to our dear old friend, Samuel Miller. I had known him for many years and have enjoyed continuous correspondence with him. He was a true lover of fruits for their own sake and was enriched in heart and soul in their culture more than in pocket. And now that he is dead I am remimded of our dear old friend, Parker Earle, who is now developing great orchards in New Mexico. Some 15 or 20 years ago, when the Mississippi Valley Horticultural Society held its meeting in Kansas City, Parker Earle, Norman J. Colman, J. M. Smith, Green Bay, Wis., T. T. Lyon of Michigan, and a number of Indiana and Illinois horticulturists, whose names I do not now recall, met in the Union Station at St. Louis and started on the night train for Kansas City. Some of us were wondering if Samuel Miller would be at the meeting, and J. Parker Earle suggesting that he might want to be there but short of funds to go with, stimulated the passing of the hat that resulted in a telegram from the next station inviting him to attend the session, with all expenses guaranteed. I never see the name of Parker Earle anywhere but I think of that kindly action and the good spirit back of it.

Samuel Miller's brother David, at the old home farm in Pennsylvania, has the same lovable character as his brother Samuel; his home grounds of a few acres are crowded full of all the new fruits for testing and the best of the old ones for fruiting. I occasionally visit there and it is a real treat to spend a few hours with the dear old man and his good wife, walking among the trees and plants and getting many ideas and inspirations that are useful in broader lines. I recall being there one time when Japan plums were less understood than they are now and he asked me to show him how they ought to be thinned. I started in on a pet tree, when he was called away by the friend who was with me and before he had returned I had about finished the job. I received rather a mild protest, which was really a very strong condemnation from this type of man. After I had left he told our mutual friend that "friend Hale had done him a grevious wrong by throwing away so much of his choice fruit."

Two or three months later, when the fruit that was left on the tree came to maturity and was larger and more beautiful and luscious than any he had ever seen before, and the perfection of a crop, he drove eight miles to tell my friend that he had done friend Hale a great wrong and wanted him to write and ask my pardon. Bless his dear old heart.

President Murray, in his address, speaks of buying fruit from the old worn-out land in the East, and also tells the society that the best Missouri fruit land is the cheap land in the Ozark region; and it is a fact, whether East or West, taking all things into consideration, poor thin lands give us the best color and best flavored fruit, and where properly handled in the way of cultivation, green manuring and the addition of some fertilizers, the fruit crop is better under our control and more profitable every way than on stronger lands with more natural fertility. Some of our best orchards in New England today have been established on so-called worn out hillsides and semi-abandoned farms. Fruit growing today is really a manufacturing process, and there are many other conditions far more to be desired than that of natural fertility of the soil.

Attorney Brown with his "kitchen garden" subject had a topic which needs hammering home to every land owner in the country and especially to farmers; for it is a singular fact that not one farmer's family in a hundred has a first-class kitchen garden, and in most sections of the country the average families in cities and towns, who buy all their fruits and vegetables, have a greater and more varied supply than do land owners. The fact that you had to get a lawyer to talk to you on the subject indicates that you in the West are just about as far behind the lighthouse in home-supply matters as are the average of us here in the East. What he said about the asparagus bed is especially true, only I would like to take issue with him in the matter of having a "small bed." Years of experience in the nursery business has run me up against hundreds of families starting with the "small asparagus bed" idea, and so we often get orders for 25, 50 or 100 roots. Whenever I have time I usually write the people ordering and tell them that a good respectable family with a clear conscience don't want to start out with an asparagus bed with any less than 300 plants—500 or 1000 will be better—and if they cannot buy more than 50 or 100 I would rather give them the rest, than sell them so small a number. It is a BIG asparagus bed that every family wants, SURE.

Training tomatoes to a trellis is, of course, better than to let the plants spread themselves on the ground, but if you want thoroughly first-class fruitage in great abundance, train them to stakes 5 or 6 feet high, with only two branches trained upright, and tie every six inches. Pinch off all side branches as fast as they appear; this requires some little attention once or twice a week, but the results will amply repay for the trouble. We start our tomatoes by deep planting in level culture and when they get well under way in growth, say 18 to 20 inches up the stakes, we earth up around them for a foot or more. New roots are at once thrown out from the plant into this mound of earth, which warms up very quickly each day and brings on the fruitage from ten days to two weeks earlier than the same plants, left in level culture.

Mr. Flournoy's talk on the "Model Orchard" sounds like that of a man of experience, and he is dead right when he says one must adjust himself to local conditions always, and I agree with him that setting far apart and pruning less is the ideal way to care for an orchard, and especially is this so where land is cheap and tillage not too costly. And yet, after all, my close-planted and more closely pruned orchards have always paid me the greatest profit; so you see it is possible to believe one thing and yet know and practice another thing that pays better. This is probably in the line of taking the risk of doing things ourselves, which we would not advise others to do.

As to our rocky lands, the very worst you have in Missouri is no comparison to much we have to contend with here in the East and yet the more rocky the land the better the fruit and the more sure of results in a dry season. Of course, the rocks are seriously in the way of cultivation, and so I have been moving them by the thousands of tons annually for many years, but if I could till the land as well with the rocks as without them, I would never get any of the stones off the field, because I think they are a decided advantage in many ways.

Mr. Halliburton's five-acre talk touches several interesting points. Very close planting and a variety of fruit on the same field are admissible so far as supplying plant food is concerned, but it interferes so seriously with cultivation at certain seasons and there are so many roots in the ground to pump out the moisture that were one to follow this sort of planting, irrigation is absolutely necessary for best results. A manufacturing friend of mine, who is a lover of fruits and vegetables and believes in the family fruit garden, has a three-quarter acre closely planted orchard and garden, where three or four tons of commercial fertilizers are applied annually, and hoeing and raking does all the culture and it is slick and clean all the time, and then by irrigation with a liberal amount of water under pressure, he attains wonderful results; for, besides furnishing three families with an all the year round supply of both fruits and vegetables, there are annual sales of from two to three hundred dollars to city neighbors, who call for their own supplies daily and make no expense for distribution and marketing.

President Murray's favoring deep plowing so as to prune the roots of strong growing trees on rich land touches a vital point in orchard culture. On light, thin lands, where there is but moderate tree growth, shallow plowing and just as little disturbance of the roots as possible is the ideal culture, but on lands of great natural fertility, where trees make strong wood growth, deep plowing, or any culture that cuts more or less of the roots each year, is always helpful to fruitage. In my home ground here, near a highly fertile family garden, on rich, moist soil, we had a couple of Yellow Bellflower trees that reached great size and yet at 25 years of age had scarcely produced any fruit of value. In draining ing a piece of land it was necessary to pass within six feet of these two trees, digging down 12 feet, which, of course, cut off all the roots on one side of these trees six feet out. This ditch was dug in August of one year and the next year those trees bore a good crop and have continued in heavy fruitage every season, especially as in late years they are plowed about deeply with a heavy two-horse turning plow, that always breaks more or less roots each year.

Secretary Goodman's remarks in relation to burning out the soil by too intense cultivation is worthy of careful consideration. My own experience in the South teaches me that it is best to begin cultivation as soon as the buds begin to swell in early spring and give thorough and intense cultivation for two and one-half to three months and then seed the land to cow peas or some quick-growing cover crop that will protect the ground during the latter part of summer and early fall and remain on the ground over winter.

But Goodman's suggestion of "one way being to plow from November until spring," strikes me as very unwise. Living plants and trees are a good deal like human beings, and when they take off their clothes and go to sleep they want to be let alone. If any one tries to shake up the bed and air the clothes after I have gotten to sleep, there is sure to be a disturbance and more or less trouble, and my experience with orchards is that a plow or any implement of culture should be kept out of them during the dormant or sleeping period of late fall and winter, unless you want to do some positive harm. Occasionally winter plowing may be admissible when one wants to get rid of a tough sod or kill out some noxious weed, roots or insects; but as a general proposition nearly all orchard culture should be given in the early growing period of each year.

Mr. Hopkins' advice not to cultivate peach orchards after June first has a measure of safety in it, but to guard against drouth and keep up the freest kind of growth, I always like to continue the cultivation in the orchard until the bending branches of almost maturing fruit drives me out. The danger of to much wood growth is readily overcome by a little summer pruning just before the maturing of the fruit; it will let in sunlight and air, and settle the question of color and quality, regardless of the extra cultivation.

Mr. Speakman is right in preferring newly cleared timber land as his first choice for a strawberry plantation, but the majority of strawberry planters cannot have this choice, but they can have cow peas, and I agree with him that there is no preparation for strawberry planting that can surpass one or two crops of cow peas on almost any old land. Land here in New England that has been in cultivation for 250 years, and where I have been growing strawberries for fruit or plants for the nursery trade almost continuously for 35 years, by broadcasting a bushel or a bushel and a half of cow peas to the acre and applying two or three hundred pounds of muriate of potash to assist in their growth, fits the ground for just as strong a growth of strawberry plants as can be had on the best of newly cleared land. In fact, my very best strawberry plants, often with roots 8 to 12 inches long, are grown on old worn-out sandy plains lands, with very moderate fertilizing, wherever I use the cow peas, and I think the use of these helpful plants should be greatly extended over a large range of this country, where there is not new ground always available. I find cow peas just as valuable an aid to fruit culture here in New England as I do upon the Georgia farm, and I am sure they must be equally valuable with you in the Central West and while in all of our fruit-growing, local varieties and conditions must enter largely into our planting and general methods of culture, the same foundation principles hold good everywhere and the more we get together and freely and frankly discuss matters from every point of view, the greater will be our progress. Such meetings as the one recently held at St. Joseph and others that are being held all over the country at this season of the year are doing much to advance the cause of horticulture in all its branches, and I notice with pleasure each year that we are hearing less from the theorists and more from the practical men and women, whose daily lives are in close touch with the plants and trees, and where close observaton follows the work, they are in position to give us soundest and best advice. Our Connecticut Pomological Society is to meet in Hartford the first week in February and if any of the Western horticulturists will only drift this way I will guarantee them a good meeting and a cordial reception from all our members.

Yours for good fruit.

J. H. HALE.

(Now that is the next best thing to having Mr. Hale at our meeting. Some day he will meet with us, we will give him the best we have—even Ben Davis apples—and his reception will be such as only the West can give.—Ed.)

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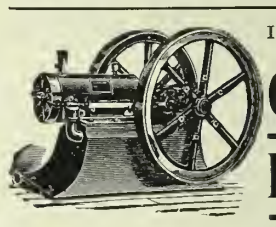

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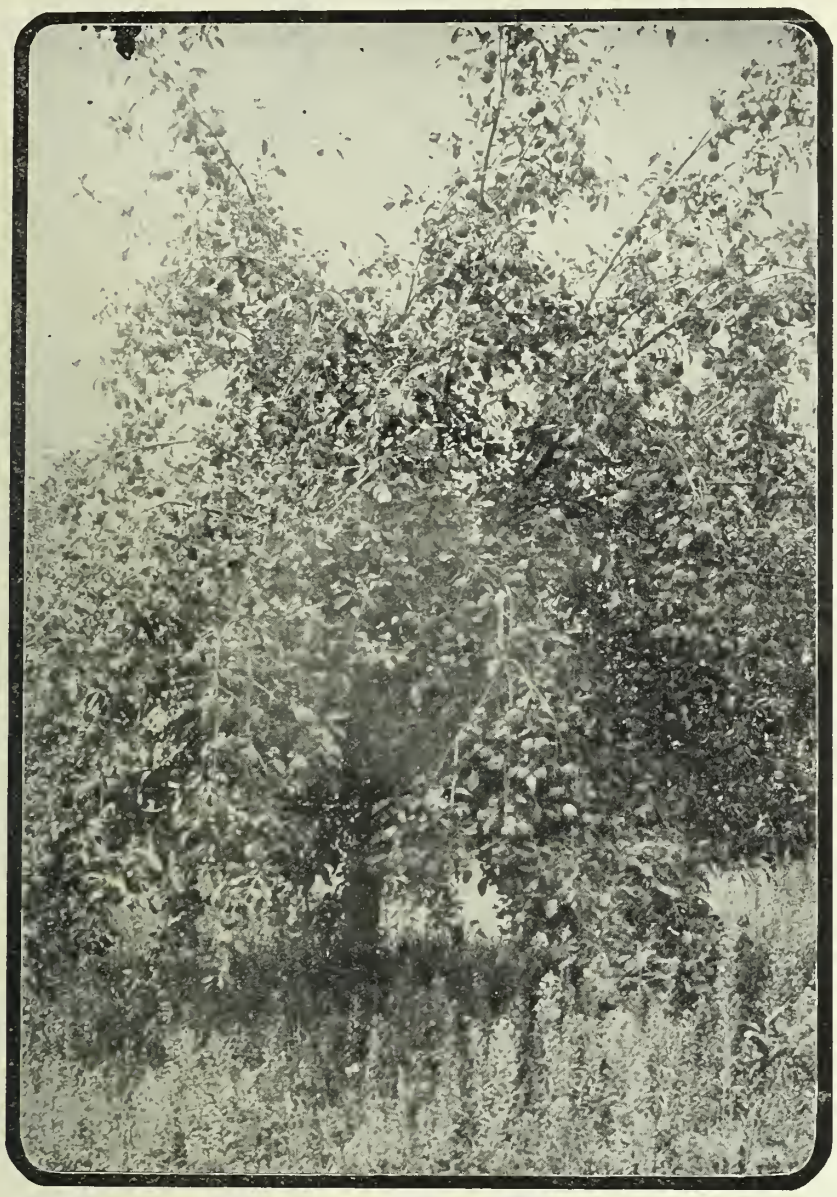

RESULTS ARE WHAT COUNT.

The above illustration shows an apple tree in the orchard of W. D. Maxwell, St. Joseph, Mo., who used the liquid spray up to two years ago. At that time he experimented with the dust process. He believed results were as good as with the liquid, and in season of 1900 decided they were better. In 1901 he used only the dust process, and had an excellent crop of fruit which sold at a high price, while his neighbors' trees were barren of fruit.

Those who have read the columns of the Western Fruit-Grower know of the success of others. They know what Secretary L. A. Goodman of the Missouri State Horticultural Society says of it, and they know of the success of the Hillis Sprayer everywhere.

The past season proved the value of dust spraying. It proved that it is unnecessary to haul a heavy tank full of water over our orchards, and apply paris green, lime and water to fruit trees, to destroy insects and fungi, when lime dust and paris green alone will do the work. The water is used only as conveyor of the poison—and with the dust process you get rid of this extra weight. The cost of spraying is reduced to about one-third that of liquid spraying.

The Hillis Dust Sprayer

Is the best machine for applying the dust. It is operated by one man, can be carried by the operator, so that trees can be sprayed when ground is soft and a team and wagon could not be driven through the orchard—and this, you know, is just when spraying is needed. It is cheap, effective, and the

Dust Can be Applied Three Times as Rapidly as Liquid Spray.

and a very disagreeable task is avoided—for liquid spraying is not pleasant work, at best.

For cabbage worms, potato bugs, etc., this sprayer is the best machine in use. The lime dust and poison is forced in every crevice, and results are instantaneous. Every farmer should have one if for this purpose only.

Write for prices, book of testimonials, etc., free.

WE WANT AGENTS, and have a good proposition for one man in every community.

Poisons for Dust Sprayers

Believing that best results with the dust process can be obtained only by using powders which are properly mixed and are ground to a dust, we have arranged to furnish the dust for all makes of sprayers.

In making the dust we use chemically pure drugs and materials. Lime is the body, and it being a carbonate is insoluble, and we use the poisons in the different formulae as nearly insoluble as possible. It is better to have the dust insoluble and thoroughly triturated into an impalpable powder by machinery, from the fact that the coarse powder will not adhere to the foliage or fruit. But when an impalpable dust strikes the leaf it will adhere to the pubescent surface and absorb moisture. Every time it absorbs moisture it gives off a portion of its strength, and therefore the powder will remain quite efficient until it is removed by hard winds or rains.

In liquid sprays the ingredients must be more or less soluble, such as sulphates, and when the water evaporates the precipitate or sediment which is left has lost its strength, and therefore the effect is of short duration.

Read What Those Who Have Used the Machines Say:

Mr. J. H. Hillis: Your sprayer has created a great excitement in this neighborhood. It is all the talk, and everyone who has tried it is well pleased. I sprayed some trees that contained canker worms and in a few days they were all gone, and now the trees are free from insects. Respectfully—A. Bates, Elk Creek, Neb.

Mr. J. H. Hillis: I made a test of your Dust Spray machine last summer and it gave good satisfaction in several respects. I consider it the best of the powder guns that I have tried for the destruction of the many insects. The application of powder has many advantages over the spray pumps. Your dust sprayer is well adapted to applying the powder. Respectfully yours—L. R. Taft, Horticulturist Michigan Experiment Station.

I hereby certify that I bought one of Hillis' Dust Sprayers from J. W. Rains last spring. I used it on my melon and pumpkin vines with success. I also used it on my cabbage and was successful in driving away the worms. I consider that the machine has more than paid for itself the past season.—A. D. McDusen, Notary Public, Leesville, Mo.

The following testimonial is from a gentleman who is an entomologist, and who tried four of our Sprayers last season:

"J. H. Hillis: We worked the sprayers hard all summer and fall. Did not lose a single melon vine, cucumber or squash; beans did better than ever before. London purple, lime and sulphur seemed to meet all requirements. Summer and fall apples were free from worms; winter apples were hit on the sides by codling moth, but stem and calyx were unusually free from insect marks. We were very much encouraged by results of dust spraying, and expect to carry on the good work again this year, as we find it cheaper and much more easily applied than liquid spray. I almost forgot to mention that the canker worm appeared in great numbers last spring. One spraying with Bordeaux and paris green in dust form completely destroyed them. John Dalziel & Son, Canon City, Col.

Note Change in Address Owing to lack of facilities for handling our increasitg business at McFall, we have moved to St. Joseph, and are prepared to fill all orders for sprayers, or dust for the same, promptly. For additional information address

Hillis Dust Sprayer Co.

St. Joseph, Missouri

Spring Canker Worm

Description of a Pest Which Causes Much Damage Every Season--How to Fight It. . . . . .

AMONG the insects which in the last few years have done the greatest damage to western apple orchards we believe the spring canker worm (paleacrita vernata Peck) perhaps heads the list. This insect has increased from year to year, until last season whole orchards were entirely defoliated by it. Many persons fail to recognize the importance of combating the pest until it has begun its work of destruction—and then it is hard to fight. Believing that "a stitch in time saves nine" the Western Fruit-Grower this month presents

Figure 1. Lawa (Enlarged).

illustrations showing the insect in its different forms, its work, and also gives methods for preventing and combating it. For the illustrations and subject matter we are under obligations to the Kansas Experiment Station.

The canker worm is a pest which is with us and is one which must be fought. If taken in time it can be held in check very readily. If one is spraying for codling moth, the canker worm will not need to be considered. There is need, however, of spraying young trees not yet in fruiting if the canker worm appeared in the vicinity the previous season; of course trees of this age are never sprayed for codling moth. Trees not in leafing suffer from attacks by the loss of leaves; although the injury to new foliage may seemingly be offset by the putting out of later foliage, still a loss must be sustained by a checking of the growth of the tree. Where entire defoliation has taken place three times in succession the tree is practically ruined. When trees are in a state of bearing the drain on the vitality is even greater.

The injury done by canker worms is not all confined to fruit trees, but they attack a number of our valuable forest and shade trees. Oak, elm, ash and catalpa are often attacked. In the orchards, the apple, peach, plum, cherry, apricot and quince suffer the most severe ravages. The leaves when first attacked become perforated with small holes; these increase in size as the leaves develop, until finally the pulpy parts of the leaves are devoured, leaving the skeleton of the leaf, comprising the mid-rib, veins and stems, giving to the trees an appearance of having been scorched by fire, as shown in Fig. 2.

The eggs of the canker worm are oval-shaped, yellowish, with a pearly luster, and are deposited in irregular clusters or masses on twigs, or at base of large branches. A favorite place is in the brown leaf masses, formed by larvae of Phycis indigenella "leaf-crumpler;" in these clusters quantities of eggs are often found, also in cavities formed by fruit spurs. In a badly infested apple orchard during the past season scarcely a single spur could be found without eggs. This is undoubtedly the objective of the female, bringing the young larvae upon hatching in close proximity to the tender, expanding leaves. Egg masses were found in the cavities formed by the larvae of the codling moth in apples left on trees during winter. The aim of the female moth seems to be to deposit eggs in concealed or protected places. The time required for the eggs to hatch is dependent upon the temperature. Eggs found March 9 were placed in a warm laboratory and hatched in ten days. Under the same conditions, eggs were deposited in the laboratory by the female moth January 9, from which the first appearance of the larvae was March 8. After January 9, eggs were not laid until February 12, when from that date eggs were being laid continually in the breeding cases. Half grown larvae were found out of doors March 11, however it was not until April 2 that eggs in the orchards began to hatch in considerable numbers. From March 9 to April 2, the average temperature during the day was thirty-two degrees Fahr., maximum, fifty-one degrees Fahr. and minimum three degrees Fahr. During this period there were various changes in temperature, from low to high, intermingled with warm rains, snows and blizzards. From April 2 the larvae became more numerous. On April 16 they were doing great damage, feeding ravenously; and a few days later in some untreated orchards scarcely a green leaf was to be seen, larvae were still hatching so that all stages of development were noted, varying from one-eighth of an inch to one and one-fourth inches in length, of a dark, olive green color, with black, shining heads when young, changing slightly with the different moults (Fig. 1). Myriads were observed suspended by silken threads of various lengths. The larvae pass to the ground, in some cases in rubbish or under leaves either by crawling down the trunk of the tree, looping their bodies or by lowering themselves by the silken threads. On May 4, nearly all of the larvae had passed into the ground and by May 20 all were gone. Data from records of previous years as to pupation show a slight variation due to early and late springs. In this pupal or chrysalid state the insect remains until the warm days of spring or late winter; occasionally a moth may appear which should serve as an indicator of coming trouble.

Figure 2. ENTIRE DEFOLIATION OF APPLE TREE BY CANKER WORM.

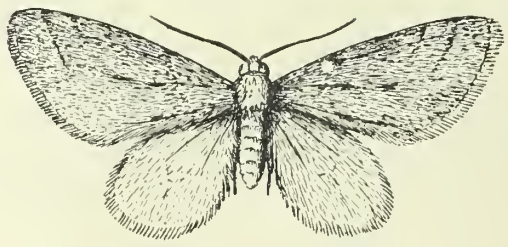

Figure 3. Adult Male (Greatly Enlarged).

The adult male is a brownish gray moth with a spread of wings of a little more than an inch — front wings are brownish white, and the hind wings are a pale, ash color, much lighter than the former. An interrupted white band crosses the anterior wings near the outer margin. The female is wingless, the body of a grayish brown color, and more robust than the male. The moths issue early in the spring from the chrysalides, in which state they pass the winter, occasionally emerging during a warm period. Male moths have been observed in November and December. From tabulated data taken by the department from a series of experiments in breeding cases, it was found that the numerical proportions of the emerging of male and fe-

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The past season was dry, but my plants did not know it. Clean culture, plenty of manure and abundance of water gave me the best of plants. All new beds; fifteen new and standard varieties.

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Price—5 to 6 foot Trees, 50c each; 6 for $2.50.
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are the best, because they have brass ball valves, patent agitator, an adjustable plunger that will never leak. No leather nor rubber about them. That's why they work so easy, give such a fine spray and cost nothing for repairs. We make them all sizes, to supply from one to eight nozzles. Our catalog tells the whole story. It's free. Ask for it.

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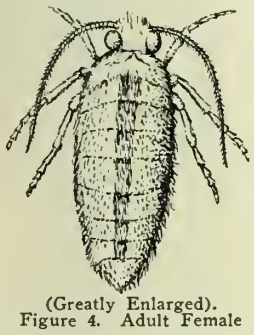
male were about the same. From a collection of 1,101 chrysalides, 560 males and 541 females emerged; the daily tabulations of each being remarkably even. Males were seen flying about on January 8. On February 20, they appeared quite numerous, and on March 8 in swarms. Another species of canker worm is the fall canker worm (Anisopteryx pometaria) differing but slightly in general description from the "spring canker worm." The moths emerge chiefly in the fall and deposit eggs—the larvae hatching at the same time as spring canker worms. The canker worm has a number of enemies, found in certain parasites which feed upon the eggs and larvae. Birds are helpful agents in destroying eggs and larvae and should be welcome guests in the orchards.

Remedies: In combating the canker worm two methods are employed, both of which when used intelligently afford ample and effectual protection. The first measures to be taken are those to prevent the ascent of the wingless female. This can be done in two ways: first, to entangle her feet so she is held; second, to prevent ascent past a certain point on the trunk, so that after numerous unsuccessful attempts she dies from exhaustion. In the first, a number of substances are used of a sticky nature, comprising such mixtures as printer's ink, pine tar, "dendrolene," "raupenleim," etc., which are smeared on bands of heavy paper or canvas which are tightly bound around the trunk of the tree, making the bark as smooth as possible so as to avoid having crevices between the band and tree. These bands should be put on during the first mild days of early spring, the sticky substances should be often renewed by addition of fresh material, especially during rainy periods. If applied directly to the trunk some of the substances recommended tend to injure the tissues of the tree. However, excellent results have been obtained in treating full bearing trees with a mixture of resin and castor oil at the rate of three pounds of resin (white) to two pounds of castor oil. Melt these together without boiling and apply as a band directly to the trunk of the tree. This mixture is very lasting, and efficacious. Bodlime, a preparation made by the Bowker Chemical company, Boston, Mass., is also used in the East for this purpose. The second method is by means of collars of tin, paper, etc., so fastened to the tree as to admit of no passage ways at the collar. Ordinary carpet paper, made with a flange at the lower side was used by the department during the last season with success. during the last season with success. suggested and will be tried during the coming spring.



(Greatly Enlarged).
Figure 4. Adult Female

The second measure to be enforced is the use of the arsenical poisons applied in the form of sprays. There is a disposition among many of our fruit growers to disparage the use of poisons, due largely to the reasons that they have not been properly applied. or that the poisons were adulterated. The most universal remedy used in spraying for the canker worm is paris green at the rate of one pound of paris green to 150 to 200 gallons of water. The mixture should be thoroughly stirred while the spray is being applied evenly. Avoid drenching the foilage, but give a fine, misty spray until leaves are well covered with mixture, usually indicated by slight drippings from the foliage. When the canker worm is about half grown the mixture does not seem to be as efficacious, often of little use, and in many cases results in the increasing of the proportions of the poisons by the operator, resulting in the scalding of the leaves: such observations have been made in many parts of the United States and Canada and certanly involve the necessity of early and repeated sprayings. Other arsenical mixtures, containing a higher percentage of pure arsenic are being used with favorable reports, and owing to their cheapness are considered valuable. It is, however, to be understood, in using these solutions, that they are considered as violent poisons and treated as such. Vessels in which mixtures are made and stored should be used for no other purpose. In the spring of '97, in addition to the paris green solution, trees were treated with the formula, recommended by Prof. Kedize, made as follows:

2 lbs of White Arsenic,
4 lbs Sal Soda,
2 gals of Water.

The mixture was boiled until the milky color disappeared or the arsenic was dissolved. One pint of this was added to forty gallons of water, thus forming a soluble arsenic insecticide.

By adding two pounds of lime to forty gallons of water, in which was placed one pint of the above stock solution, a white precipitate was formed, making an insoluble arsenic mixture, requiring thorough stirring while applying the spray. In using the above solutions, viz: Paris green, soluble arsenic solution and insoluble arsenic solution the following data were collected. The trees under treatment were affected by the canker worm in about the same proportion, the insect being thoroughly established. The experiment showed the following summarized results:

First—Trees sprayed with paris green were not scalded, loss from the work of larvae from 1 per cent to 5 per cent.

Second—Trees sprayed with soluble arsenic solution showed leaves scalded 5 per cent, larvae completely destroyed.

Third—Trees sprayed with insoluble arsenic solution showed leaves free of scald, 1 per cent of leaves destroyed by larvae.

Talked About Spraying

During the week of December 16 to 21, a series of farmers' institutes was held along the Memphis line in Southern Missouri which mark a new departure in meetings of this class. Believing that many farmers were not posted as to how to make and apply spraying mixtures, Prof. John T. Stinson of the Southern Missouri Experiment Station prepared an exhibit of spray pumps in a railway car and arranged for a series of institutes. Prof. J. L. Hall, assistant state superintendent of public instruction; Colonel G. W. Waters of Canton, Prof. Stinson and G. A. Atwood of the Practical Fruit-Grower were the speakers on the institute program. At each place a session was held in the morning, at which Colonel Waters talked on the subject of livestock feeding, etc.; in the afternoon Prof. Stinson and Editor Atwood talked on spraying and other fruit subjects, and an adjournment was taken early to visit the car. In the evening Prof. Hall talked on educational topics, with particular attention to the subject of agriculture in the public schools.

The meetings were well advertised, and at each point a good crowd of earnest farmers was present. Some of them had driven twenty miles through a snowstorm to examine the spray-pump exhibit and hear what was said on the subject. As to the exhibit, it was most complete. Almost every well known make of spray pumps was on exhibition. They were all mounted, ready to work, the car was nicely warmed and everything was done to make the exhibit attractive. Owing to the severe weather the pumps could not be taken from the car and all of them shown at work. as was intended, but in every other respect the program was carried out.

The Western Fruit-Grower wishes to commend this plan and others along the same line. A year ago the Illinois Horticultural Society sent a man into any community which would guarantee his expenses to show how to properly spray fruit trees. A number of farmers could get together, have their pumps ready and at a given date an experienced man would come and show the most approved methods of spraying. The trip arranged by Prof. Stinson is along the same line, except that it was intended primarily to interest the farmers in the subject of spraying and to show them the most modern pumps. The trip was a success, and will likely be repeated. Arrangements are now being made for another visit along the same route, in the spring, when the work of spraying will actually be done.

The manufacturers of pumps sent samples free of charge, in most cases, and the Frisco railway furnished the car and transported it. A fast freight train stopped every night to move the car from one station to the next on the route, and in every way possible the company co-operated in the work. Great good should come of the trip, and we predict that this will be the result.

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In the Best Manner and at the same time at least expense, write The General Agent for circulars of
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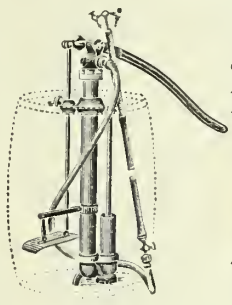

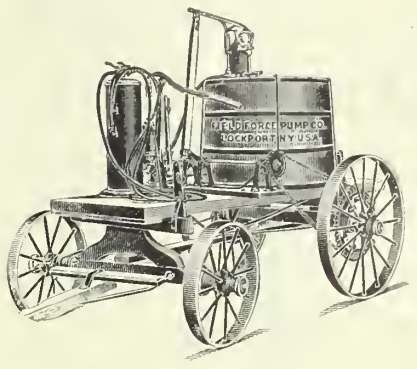

Write us about the matter—we want to send you our illustrated catalogue and prices. Deliver to you at factory prices.
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Reference:—Editor of this paper. Horticultural Department

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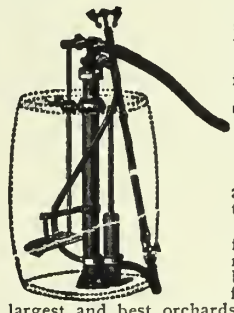
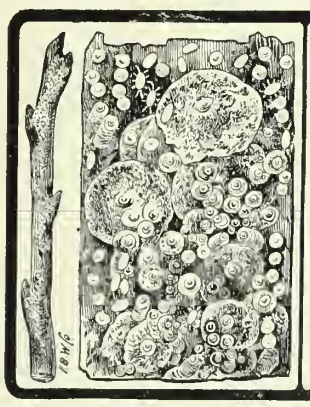


That is the ultimatum that the Insects and Fungi have served on every fruit-grower of America. If you do not heed the warning you will not get profits from your orchards.
Every man who sprays intelligently, at the proper time, finds it the most profitable operation on the farm.
The Eclipse Spray Pump
and outfits are as much superior to the common pumps as the modern self-binder is to the old grain cradle.
THE ECLIPSE SPRAY PUMPS have met and defeat-feated in public contest every pump in the world and have never been defeated; are guaranteed to save 50 per cent in labor over any other make and to furnish more hard service for $1.00 than any others can give for $2.00 invested. The largest and best orchards in the world are being outfitted with the "Eclipse." Send for descriptive catalogue No. 3 for prices and testimonials.
Our Improvememts for 1902 make our Pumps Absolutely Perfect
MORRILL & MORLEY, Benton Harbor, Mich.



There Are Few Orchards
where spraying is not attended to, but have trees more or less deteriorated through ravages of insect or fungicide pests. You could not expect much from a tree infested with parasites, as twig in cut, which shows San Jose Scale natural, and magnified. We do not magnify the merits of the
SPRAMOTOR Spraying Machine,
when we say it is absolutely the best in the world. Gold Medals and First Prizes in every contest we have entered, including Pan-American, give us license to say this, and it will give us pleasure, and be of profit to you, to write us for our 80 page book, "A Gold Mine On Your Farm," which contains valuable formulas and information; it is free.
SPRAMOTOR CO., Buffalo, N. Y., London, Can.

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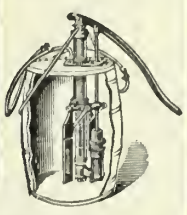
He who attempts to grow fruits now-a-days without a spraying outfit, goes into the work handicapped. Blight and bugs, rot and rust, mold and mildew all conspire to damage the crop, and in all cases succeed to a greater or less extent if the horticulturist does not spray. The very best goods in this line are made by the Field Force Pump Company, of Lockport, N. Y. The illustration herewith shows the....
EMPIRE KING Spraying PUMP,
made by the Field Force Pump Co. of Lockport, N. Y. and is one of the very latest improved outfits for this work of spraying. This is the only pump having a mechanical automatic agitator with a brush for keeping suction strainer clean. This company also manufactures the Garfield Knapsack and Orchard Monarch, and can furnish the New Process Lime, which requires no slacking or straining. If the reader will write to the Company, addressing them at 35 Market Street and mention this paper he will be furnished free a valuable book of instructions.



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Fruit Trees in Census Report

By F. A. Waugh

THE agricultural bulletins are just beginning to issue from the census bureau and we are catching the first glimpses of where we stand according to the Twelfth Census. As far as fruit growing is concerned, there have been only four states of any interest yet reported, Connecticut, Delaware, Rhode Island and New Hampshire. I had hoped there would be more statistics available when I promised to write you this article; but the Census Bureau has probably been off on its Christmas vacation the same as I have.

The statistics of fruit growing in the four states named, however, are exceedingly interesting and suggestive, and they make one anxious to see the figures for New York and to get the returns from Missouri and Kansas. I have gone over these figures and have computed the increase or decrease in percentages. These figures are tabulated below. The computation is made from the number of trees in orchards as reported in 1890 and 1900. The cases of decrease are indicated by the minus sign. Thus, in Connecticut in the last decade the number of apple trees has increased 5 per cent, the pears 44 per cent, peaches 490 per cent, plums 1030 per cent and cherries 61 per cent.

State	Apples	Pears	Peaches	Plums	Cherries
Connecticut	5	44	490	1030	61
Delaware	67	233	—46	1390	47
Rhode Island	3	12	307	266	—3
New Hampshire	17	—3	156	79	—6

One is struck first with the very small increase in apple orchards in the three New England states reported. Delaware, on the other hand, has been going in for apples at a lively rate.

Pear growing shows a remarkable increase, especially in Delaware and Connecticut, where commercial plantings are large. It is a well understood fact that these new plantings of pears are largely in the Kieffer line.

As for peaches, we have two surprises before us: First, Delaware has cut down her plantings nearly one-half, while Connecticut has now nearly five times as many peach trees in orchard as ten years ago. To be sure, Delaware still has about two and one-half million trees, while Connecticut has only half a million, but Connecticut is getting to be a commercial peach state of consequence, while Delaware has been emphatically going out of the business. It would be interesting to speculate on the causes of these changes, but there is not space to go into the matter here.

We come next to the plums. Every state named has made a signal increase in plum growing, running from a modest 79 per cent in New Hampshire up to a liberal 1390 per cent in Delaware. In other words, Delaware, with half as many peach trees as 10 years ago, has almost fourteen times as many plum trees. Connecticut, while increasing her peach acreage five times, has increased her plum plantings ten times. This shows a general, a remarkable and a permanent extension of plum growing. The explanation for this is doubtless to be found in the common introduction of the Japanese varieties, with some slight assistance from the natives and the hybrids. These have already revolutionized the plum business. The figures are before us. Such great changes, taking place within the comparatively short space of ten years, mean something for the history of American pomology, and we ought not to dismiss them lightly from our attention.

There has been a substantial increase in cherry planting in Delaware and Connecticut, too; but this may be regarded as due to the natural expansion of the fruit business.

Vermont. F. A. WAUGH.

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Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

Grape-Growing in the Southwest

Mr. C. A. McNabb of Oklahoma City, Okla., will contribute to the Western Fruit-Grower a series or articles on the above subject, of which this is the first. There is an increasing interest in grape culture in the section referred to, and we trust Mr. McNabb's articles will prove of interest to our readers. He says:

In reading different articles on the culture and handling of the grape, published in the various horticultural periodicals, I find in most instances that the author fails to make plain that the advice given is applicable to the region in which he has had his experience, and may not apply to some other climate or region. I wish to make plain in this, the first of a series of articles on this subject, that my most recent experience and observation in the handling of the grape has been in Oklahoma and the advice will not suit conditions in Nebraska, Iowa, nor Florida, but will answer fairly well for all Oklahoma and to a large extent, the new Southwest; so let this fact be borne in mind.

My personal experience in grape culture in Oklahoma extends over a period of about ten years and embraces the personal testing of many varieties under various conditions, as well as carefully observing the operations of various fruit growers in this territory who insist on trying, at least, to grow the same varieties of grapes, by the same methods they employed before coming to this new land, whether they be from Minnesota, Alabama or California.

The humidity of the atmosphere in some countries, the dryness of the air in others will of course materially change the proportion of rainfall required for, or injurious to, the grape. Here, a clear sky, dry atmosphere, high temperature, slight rainfall, little or no dew, and a constant light breeze during the months of July and August, produce conditions most favorable for success in grape culture. Notwithstanding all this the best results are obtained where the sprayer has been judiciously used during the dormant and early growing season, by which all rot spores that may have lived over have been effectually destroyed through the medium of Bordeaux mixture, which will be given consideration in a later article. The particular slope or lay of ground for a vineyard is given a prominent place in the consideration of this subject by some writers, but I consider the quality of soil, variety and quality of plants of greatest importance to begin with, then proper planting, care, cultivation, pruning and spraying the next in order. I have twenty acres of bearing vineyard located on the south, southeast and north exposures, and although the southeast exposure is generally considered the ideal, I obtained the best results the past season on a stiff north slope. The weather conditions, however, may change all this next year.

The soil for a vineyard should be a dry sandy loam with thorough underdrainage, with the rows running in the opposite direction to the slope of the ground, so as to prevent washing by heavy rains; the cultivator furrows always forming a natural water way. Having selected the site for the vineyard, the next thing in order is to get it in prime condition to receive the plants, for it must be borne in mind that the ground can never be plowed deep after having been set to vines. It is always a good plan, if the ground has been in cultivation for some years, to give it a deep plowing, and plant to some crop that must be hoed and kept thoroughly clean the season previous to planting the vines, then after the crop is removed, subsoil the ground in the direction of the slope, and let it alone till planting time arrives, which in this latitude is probably found to be best in February and March. Having

Surplus List of June-Budded Peach

List of Varieties	3 to 10 in.	1 to 2 ft.	2 to 3 ft.
Emma	2050	3000	....
Triumph	900	2025	50
Carman	7500	1000	50
Crawford's Late	400	1750	4000
Stinson's October	250	750	275
Henrietta	450	800	330
Reeves' Favorite	750	180	....
Stevens' Rare Ripe	550	2600	2250
Sneed	1300	1900	1150
Capt. Eades	750	450	....
Lemon Free	800	700	55
Salway	1150	650	....
Champion	....	1150	225
Early Rivers	50	450	375
Old Mixon Free	250	850	....
Yellow St. John	3750	5700	5900
Victor	500	1800	1275
Chinese Cling	100	650	125
Kalamazoo	100	600	425
Waddell	2650	3525	550
Alexander	1150	2600	....
Matthews' Beauty	3500	1050	25
Greensboro	1000	4750	83
Lady Ingold	3300	4300	....
Heath Cling	200	1050	4150
Tillotson	3150	900	....
Belle of Georgia	....	2200	175
Amsden	....	600	675
Chinese Free	1600	750	....
Slappey	....	400	....
Crawford's Early	250	1350	3075
Crosby	850	775	....
Albright's Winter	185	600	75
Mountain Rose	500	....	....
Family Favorite	200	1500	1100
Admiral Dewey	1050	3900	475
Mammoth Cling	200	600	300
Old Mixon Cling	200	500	275
Smock Free	50	1775	1375
Fitzgerald	350	650	....
Picquet's Late	300	1300	825
Globe	....	75	925
Gold Mine	....	500	275
Wonderful	50	600	325

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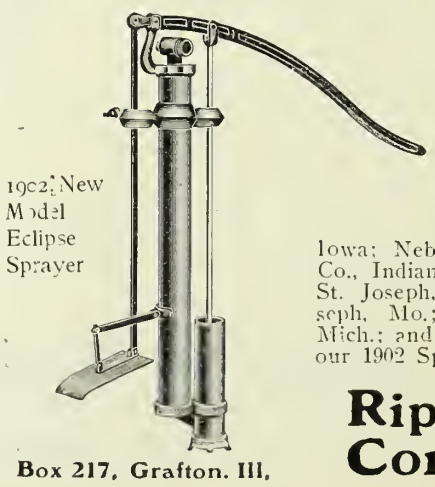

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TWO ROW CULTIVATOR

in the meantime selected the varieties you think, after due consideration and research, to be the best and most profitable sorts for you to plant, and determined the quantity of each you need to fill your vineyard, and placing your order for nothing but strictly No. 1 vines, you are in pretty fair shape to begin operations. Provided, however, the nurseryman has not neglected his business and allowed the vines to become unduly exposed, or that you have failed to properly care for them after they came into your possession, which is of prime importance, and more liable to occur with you than with the nurseryman. On the arrival of your vines all wrappings should be removed and vines carefully heeled in in some moist, protected spot, which may be near the site of the vineyard. Not merely a light covering on the roots, but heeled in in a deep trench that will protect them from any possible damage from cold or drouth, with the soil thoroughly packed around the tops to exclude the air.

Good, strong, thrifty vines are of prime importance, but the character of care which is given before and after setting out determines to a great extent the degree of success which will be attained. Watchful care and continued, clean cultivation is necessary and will be abundantly repaid at harvest time.

The selection of varieties which you are going to plant is of paramount importance, and is a matter which should be given careful thought and deep consideration. In this southwestern region, however, almost all varieties of American grapes grow to perfection; but while this is true there are some varieties that produce better results and more revenue than others, besides we must decide as between strictly a market grape or a wine grape, or varieties that are best for both purposes. We must consult our neighbors who have had some experience with various sorts, must read reports from our state experiment stations, etc., before drawing our conclusions.

New grapes emanating from favored regions, similar to that of Oklahoma, may not give entire satisfaction when grown in localities less favorably situated, and thus lead to disappointment. This is the reason for so many conflicting opinions regarding the merits of varieties, and it is unfortunate that these considerations are not better understood and recognized. Therefore, if you are not acquainted with the action of certain varieties you could profit by consulting those whose experience has been in localities similar to that of your own.

In my next I will tell you something of my experience with a number of comparatively new and rare varieties that I have fruited in my vineyard and will also take up the question of planting methods. C. A. McNABB.

Oklahoma City, Okla.

B. A. Mathews' Pear Orchards

After viewing the magnificent display of pears made by Mr. Mathews at our last state fair, the writer was filled with a desire to visit the orchards whence these fruits came and gain some information at first hands. Arriving in Knoxville on Oct. 9, 1901, I found that Mr. Mathews had just finished marketing his late pears and for the first time this season had leisure in which to entertain visitors. Desiring to know the beginning of the orchards, I learned that in the year 1854 Prof. James Mathews (father of the present owner), came from Ohio to Knoxville, Iowa, bringing with him trees of about 100 varieties of the finest pears then in cultivation and planted them in the new home. Of the original orchard, or trees planted a few years later, the following named varieties are still in good condition and productive: Anjou, Boussock, Clairgeau, Flemish Beauty, Seckel, Tyson, Pratt, Howell and Washington. At the present time the orchards contain about two thousand trees, comprising 170 varieties, many of these, however, are experimental, only one or two trees of each, planted to ascertain their true value. For market and profit Mr. Mathews plants largely of Kieffer, Clairgeau, Howell and Bezi de La Motte. The last named variety has been well known among pear growers in Southern Iowa for the past fifty years, and although it does not some into bearing as early as Kieffer, is very much better in quality for any use. One hundred trees of Bezi de La Motte planted fifteen years ago are just coming into full bearing and promise great returns in the near future. Rutter is another promising pear of good size and quality, ripening in October, fine specimens being on the trees at the time of my visit there, and it comes into bearing early. Garber is of good size, but of inferior quality, and does not give satisfaction to purchasers. Mr. Mathews has a seedling, grown from seed of Birkett pollenized by Kieffer. The tree is about ten years old, a very fine grower, fully hardy, Fruit was hard and green, so we were unable to ascertain its quality. About thirty-two years ago Mr. Mathews obtained trees of the Birkett pear from the late D. B. Wier of Illinois, and two years later found trees of it in Moore County, Iowa, where they hade been planted for more than twenty years. He has Sudduth top worked on Birkett and can see no difference in the varieties. He does considerable top working each spring, using Birkett and Longworth as stock trees. Has a novel and successful method of keeping scions, which is accomplished by sinking in earth a box of the requisite size. The cuttings or scions are placed in the box and the place covered with straw or slough hay to exclude frost. By this method scions often keep a year, in perfect condition, being surrounded only by the natural moisture rising from the soil. The box should be buried where water can not enter.

The impression has gone out that Mr. Mathews' success in pear culture was due to the fact that his orchards were situated upon clay ridges that appeared eminently suited to growing pears, but this is a mistake. The orchards are on rolling ground, with subsoil varying from yellow clay to sand shale. The trees are planted in blue grass sod and a space four or five feet in diameter is kept spaded up and hoed under each tree. By this method the trees make a free growth, which they would not do if sod-bound.

Mr. Mathews is troubled little with blight, cuts out all affected branches and by this means keeps the disease under control. Although the greater number of the trees are yet to come in bearing, Mr. Mathews fruited over sixty varieties the past season, and the yield aggregated five hundred bushels, which sold on an average for two dollars per bushel. On some trees of Kieffer, planted ten years, the yield was five bushels per tree. In his chosen work Mr. Mathews is ably assisted by his estimable wife, who annually has personal supervision of their fine exhibit at our state fair, an exhibit that in 1901 surpassed anything of like character at the Pan-American Exposition.

Among the many items of interest on the home grounds we noticed Magnolia Acuminata and Riga Pine, planted some forty-six years ago, also hardy native persimmons in orchard, that withstood the freeze of 1899, without injury. Referring again to the pears, I will add that they bear with greater regularity that apples, and that no orchard in Marion County produced as many bushels of apples in 1901 as were grown of pears in the Mathews orchards. M. J. GRAHAM.

Adel, Iowa.

To Our Subscribers

With this issue is inclosed a slip offering the Western Fruit-Grower one year to each of five NEW subscribers for $1. No less than five can be sent at this rate, but as many more may be sent as desired.

We send out these slips so that our friends may show their appreciation of the Western Fruit-Grower. We are certain they are pleased with this issue and that they hope for a continued improvement. This will be made possible only by an increased circulation. Every reader of this paper can get five of his neighbors to subscribe if they will only ask them. A number of our readers never send their renewals without sending from one to ten new subscribers, and we hope about five thousand more will adopt this plan.

Of course no one who appreciates what it costs to publish a paper like this will ask or expect us to accept renewals at this rate. The offer is made only for NEW SUBSCRIBERS, and we count on getting their renewals at full regular rate to make us even on the first year's subscription. We will make this offer, however, for renewals: If any reader will send in TEN NEW NAMES, and a $2 bill to pay for them, we will extend his own time one year free as a premium. This is certainly a liberal offer—ten new subscribers and one renewal, all for $2.

We count on the support of every fruit-grower who receives a copy of this issue. Great things can be accomplished when we get a circulation of 50,000 copies—things not possible now. Think what the crop-reporting bureau, for instance, as outlined on page 8, will mean when it embraces 50,000 farmers who grow fruit.

The Western Fruit-Grower feels that it is entitled to receive five new subscribers for $1 from every name on our list. We have proved the paper to be worthy of support. Will you now do your part?

Western Fruit-Grower, St. Joseph, Mo.

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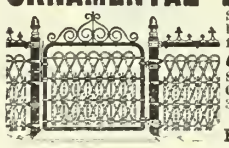

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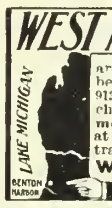

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Please mention the Western Fruit-Grower.

Major Frank Holsinger's Department

A DISH of Crow.—Mr. Crow of a certain nursery firm was present at meetings of both the Missouri and Kansas State Horticultural Societies, with some splendid specimens of apples which he had labeled "Black Ben Davis." While examining the fruit casually I was quite positive in my remarks, saying "they are evidently from the Pacific Coast, having the peculiar growth of that region."

Mr. Crow assured me the apples were Missouri grown, having been raised in Lawrence County. This being the case, I then determined to make a closer inspection at the Kansas meeting, especially as I found Mr. B. F. Pancoast, who was also a member of the committee on the fruit exhibits, had doubts as to the sameness of the two varieties. Mr. Cutter, the third member of the committee, like myself, was quite positive the apples were same as Gano, as were many other of the best informed horticulturists present.

Mr. Cutter and myself undertook the examination, Mr. Pancoast being absent. Taking one of the apples labeled "Black Ben Davis," and one we knew to be Gano, we cut them around horizontally, exposing the seed cavities. We found the Gano pure white, while Black Ben Davis was as dark-fleshed as Winesap. The cords, too, which run through the apples were quite distinct, being dark and heavy, whereas in Gano they were hardly distinguishable.

Another difference was in cutting the apples. The Gano cut smooth, while Black Ben Davis was firm and solid. Having the apples cut, I made several tests without looking, and in each case I was able to determine, not making a single mistake.

Among those present while the examination was being made I recall Mr. Walter Wellhouse, who was quite positive in pronouncing them different varieties. Mr. Cutter, of the committee, admitted all the differences above noted, but thought "difference in location had much to do with it." Mr. Pancoast was not present at the last test, his mind having been made up previously.

I have no hesitancy in saying, with what light I have, that Black Ben Davis is a distinct variety from Gano.

Crow is not a pleasant dish (no reference to Mr. Crow, whom I found to be much of a gentleman), yet I take it with good grace, as I assured the gentleman that I would have the fairness and honesty to give the public my conclusions, when the test was undertaken.

I can say further, that while I wish this dish had been spared me, I accept it without all condiments.

J. H. L., Lecompton, Kan., asks: "Are the peaches killed, and if so, what did it? I thought they would stand a temperature of 20 degrees below zero, but they seem a goner here." I am free to confes that the peaches are in a bad fix. Most varieties are killed, although trere still remain a few buds of the Crosby type. I think the disaster was caused by the sleet which covered the branches when the mercury registered 8 below zero. The injury extends far to the south, as far as Arkansas and the Ohio River.

Peach Yellows.—Many nurserymen claim their stock of peaches in nursery is free from yellows. Is that true? Most certainly. Why? Because the yellows is a disease that requires the trees to have grown to the bearing age before showing the disease. Great ado is made of trees grown from seed free from the disease, etc. I have never seen a one-year-old peach that showed signs of peach yellows. Trees in certain districts where the yellows are known never fail to develop yellows, no matter where the stock is grown, while in other districts trees grown in locations badly infected and shipped to districts that are immune do not show it. Thus in Missouri and Kansas the yellows are unknown, although trees have been received from every nursery in the country. The disease is one of location rather than of diseased parent.

The following was received from our worthy friend Carpenter of Gashland, which was overlooked. It is a phenomenon that is hard to explain. The ways of Nature are sometimes mysterious.

"Dear Major: I send you specimen, not for worth or quality, but curiosity and thought. What is it? You say 'nectarine.' But is it? They are off of old trees that have borne peaches—regular old fuzzy peaches— for fifteen or twenty years, of fair to good quality and size. There are two trees, both fork at ground. Of one, one fork is 29½ inches in diameter; the other fork 23 inches, 19 inches above ground. The other is 29, and 18 in diameter. Immediately under and 6 feet from one is a Damson, full of bloom in spring but no fruit, while other Damson trees within 60 feet had fair to full crop. Near the other are Wild Goose and Weaver plums. What caused these trees that have always borne peaches to have these smooth skinned fruits, which is neither peach, nectarine, plum or Damson?"

Among a lot of clippings sent me by our friend Carpenter is the following: If true it is worth a whole lot to our grape growers and others: "I saw an inquiry in your paper, how to make timber last. Now, I have a secret which I will give you for the benefit of my race, that will make timber last longer than iron at the expense of half a cent a fence post: Take boiled oil, thicken it with pulverized charcoal, and cover the timber with it."—Prairie Farmer.

Bud Variation.—The subject of bud variation was much harped on at both the Missouri and Kansas state meetings. I confess I can't see how or why we should rely upon it for the improvement of our varieties of fruits. I offer the following from the pen of Grant M. Hitchings of Onondaga Co., N. Y., published in the Rural New Yorker:

What in your judgment has most to do with fine fruit production?

The evidence thus far seems to indicate that the soil and location and principally the way the fruit buds have been nourished, has more to do with producting finer fruit than anything else.

What evidence have you of this?

We have four Northern Spy trees about 30 years, set in squares 25 feet apart each way. Two of them on the south side invariably gave larger and finer fruit than those on the north side, which were crowded by other trees. Five years ago one of the trees on the north side was broken down, also those that were crowding the remaining one. Since that time this tree has given just as good fruit as the two south trees, showing in this case that it was lack of nourishment.

We understand you have trees which began to bear six years from planting.

The six-year-old trees (Spys) that bore this year were purchased of a Syracuse nursery. There were 150 in this lot; nearly all had a few apples on them this year, and all of them are similar in type. They have all been carefully mulched to strengthen bud formation. The eleven and nine-year old trees that bore heavily were from different nurseries, and I could see no difference in type.

Do you observe much difference in the same variety?

I have a Fameuse that always produces pale fruit, and also those that produce red fruit. Next spring I am going to graft a Ben Davis that produces bright red fruit with a graft from the pale Fameuse and a graft from the red Fameuse, and see whether the type holds good in the new surroundings. The pale Fameuse is crowded by a Transcendent crab, which is a gross feeder, and that may be the trouble with the color.

You think, then, that crowding the trees too close together will give light-colored fruit?

A Wealthy tree at first gave high-colored fruit, but its root pasturage is becoming restricted by other trees, and I notice each year that its fruit is becoming paler. I observed this year that when a tree is heavily loaded the lower apples remain pale until the upper ones are picked; then the lower or pale ones color up, showing that the tree didn't have sufficient strength to color up all at once. I notice that the same variety behaves differently in different locations, in size, color and quality.

What can the orchardist do then to know that his fruit will be first-class?

It seems to be a case of each one finding out for himself what is best for his particular location. Now, as to what I am doing this fall. I have ordered 125 Spy, 75 from a Syracuse, 50 of Rogers pedigree trees. The trees from Syracuse are grown on heavy clay, rich in potash, and are full of vitality. The pedigreed trees are small-

NUT TREES

Pecans, Walnuts, Chestnuts, Hazlenuts, New Japanese Walnut, "Emperor." Address

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Three to five days earlier than Michel's Early, twice as large and twice as productive. Send for circular.

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STRAWBERRIES and all other small fruits.

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Apple, 2-year and 3-year-old. Large stock of Ben Davis.
Cherry, 1-year and 2-year.
Keifer Pears, 2-year.
Peach trees. A few yet on hand.
American Arbor Vitae, 3 feet. A bargain.

Also some Y. Imperial and Jonathan cions and some No. 2 Apple seedlings.

We always carry a general line of first class stock and shall be pleased to correspond with anyone wanting anything in our line.

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fits the fellow that wants an extra good feed mill at an extra low price. Guaranteed to grind all grains single or mixed, and to be fast, large capacity, strong, durable and easy to operate. Ask for circulars and price list.

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Every one of them is guaranteed to be the best of its kind. Every plant is guaranteed to be fresh dug and to be true to name and variety. Every plant is strong, hardy and most carefully selected.

Pearl Gooseberry

This is the best of all the American varieties. It is result of cross between the Houghton, one of the large English varieties. Hardy, free from mildew, superior in size and quality, and more productive than the Downing.

Columbian and Loudon Red Raspberries

The former is cross between Cuthbert and Gregg; resembles in type and color the Shaffer Colossal, but is superior to and larger than it. Being firm fleshed and very solid, it stands up well in canning. The latter berry is a famous mid-season red raspberry, renowned for its superior growth, large fruit and rich, dark crimson color. It is of finest quality, marvelously productive and hardy. It stands shipping well, and will remain on bushes longest without injury.

Cumberland

This wonderful black raspberry originated in Pennsylvania, and is supposed to be a seedling of the Gregg, with a dash of blackberry blood in it. It is supposed to be the largest blackcap in cultivation. This is the berry which Major Holsinger recommends so highly.

Erie and Rathbun Blackberries

The former is well known for its extreme hardiness under all conditions, and is one of the most prolific bearers in cultivation. The fruit is large, uniform and of excellent quality. The Rathbun is the largest of all blackberries, and is extremely productive.

Palmer Strawberry

We have only a limited stock of this New Extra Early Berry. It is the largest, sweetest, handsomest and most prolific of all the so-called early strawberries, and every grower in the country should try at least a few plants. It will surprise you.

Pomona and Fay's Prolific Currant

Wherever Pomona has been grown and fruited it is declared to be beyond all others in productiveness. Fay's is too well known to require further commendation. We have numerous other currants for selection.

McKinley Grape

The remarkable new grape is a cross between Niagara and Moore's Early, and ripens fully two weeks before Niagara. It is sweet and fine flavored and perfectly free from acid flavor around the seed. It grows equally as strong as the Niagara, and is an exceptionally good shipper.

In addition to the foregoing specialties we have all kinds and varieties of small fruits and garden roots. We can also supply wants in Apples, Peaches, Pears, Plums, Cherries, Quinces, etc.

Write at once for our new 1902 Catalogue and Prices

Allen L. Wood

Wholesale Grower
ROCHESTER, N. Y.

er, but have a known parentage. I shall watch their development with interest. The trees from that heavy clay have always started better with me than the trees from the other nurseries.

Then you would not bud or graft with wood from your best trees?

I have hardly enough confidence in the plan to warrant me in going to all the bother of doing it for myself, the results from so many varieties being satisfactory the other way. I have tried some pedigreed strawberry plants alongside of others, and the pedigree didn't pan out. The plants that didn't have any pedigree were rather the better in fruiting. Yet, notwithstanding the evidence seems to indicate it does not appear to pay to bother with "pedigree" trees, I am buying them, and paying more for them, for the theory seems all right, and if there is anything to it I want to be in line.

SOME BEAUTIFUL THOUGHTS PICKED BY THE WAY.

"Trust comes into our hearts as rivers come to the sea—and in the dark hours of doubt and foreboding we rest fondly on our buoyant Faith as the treasure of our common life; and in our holier musings we look to that strong hand and that gentle spirit of Him who can lead us away from the vanities of worldly ambition to the fullness of that joy which the good inherit."

"The right kind of tools doubles the effectiveness of labor."

"We are born for a higher destiny than that of earth. There is a realm where the rainbow never fades, where stars will be spread before us like islands, that slumber on the ocean; and where the beings that pass before us like the shadows shall stay in our presence forever."

"The longer I live and the more I see
Of the struggles of souls toward the heights above,
The stronger this truth comes home to me:
That the universe rests on the shoulders of love—
A love so limitless, deep and broad,
That men have renamed it and called it—God."

"We do not take possession of our ideas. They take possession of us. They master us and force us into the arena, where, like gladiators, we must fight for them."

"Joy must be in you, or it will never go out to others."

"A love of the soil and all the pursuits of out-door life, is one of the most beautiful and healthful signs of the people. Other pleasures pale and are satiated with time. We outgrow them, but every spring is a new revelation, every summer a fresh original chapter of experience, every autumn a fruition of hope; as well as seeds and buds. Nothing so conduces to our happiness and prosperity as the multitudes of our rural homes."

MISSOURI VALLEY SOCIETY MEETING—The December meeting of the Missouri Valley Horticultural Society was held in the club rooms of the Coates Hotel on the 21st. The attendance was quite large. Nearly all the veterans were present. Vice-President Cellar called the meeting to order. "Our success and failures," of the past year was up for consideration.

We took occasion to say the season was a peculiar one, in this, that the conditions of the brethren was very unlike. With myself and some others we had to contend with one of the the most disastrous of hail storms it was our lot to have witnessed. The hail was so destructive that for a time we had little prospect of having anything. Small fruit was entirely destroyed. Early Richmond cherries were half gone and all that remained were thrown down. Other varieties were so injured as to be almost worthless. Plums were pounded, but not entirely ruined. The peach was a surprise. While we had hoped for nothing, yet they developed some of the finest fruit I ever saw. The apple was, alas! of little or no value, being pounded, many of the bruises caused decay, while the broken places afforded refuge for insects, many of which ate into the fruit, making it worthless. On the whole the season, while not entirely disastrous, yet was far from satisfactory. The very dry season added much to the failure. The strawberries and early cherries before the hail came, gave us some satisfactory result, while the peach during the late season was quite satisfactory.

George Holsinger wanted information: "Supposing you have only 20 acres and you are dependent on it for a living, what would you do with it to insure best results?"

The chairman called on J. C. Evans to answer. Colonel Evans replied: "I would plant raspberries and blackberries largely, with other small fruits; also cherries, plums and peaches.

L. A. Goodman: "I would plant to apples, Jonathan and Gano, 30x32 feet, planting cherries, plums and peach between, with raspberries and blackberries, and when the orchard required it, I would not hesitate to use the ax, cutting out the trees other than the apple."

The chair said the Grimes were no good on his soil and asked Mr. Goodman what influence upon the apples the blackberries could have. Mr. Goodman thought beneficial, enriching the soil, leaving the orchard in better condition than it was.

Mr. Cellar said his experience was the reverse of Mr. Goodman's.

George Holsinger said his land was in the bottom and would plant one-half in strawberries. The matter of varieties was an important factor. Mr. Goodwin would plant Aroma, Warfield, Bubach,

George Holsinger named Excelsior, Nic Ohmer, Parker Earle, Gandy, William Belt.

Asa Chandler would plant cherries, plums, peach and berries between; also grapes.

Mr. Perkins (who by the way is one of our largest and most successful planters), would plant cherries, lots of gooseberries, with other fruits. Gooseberries give better returns than any other small fruits, being a sure bearer, easily handled and standing more abuse than any other, if you take them to market and don't sell, place in your cellar and take in next week.

From the opinions given one would think the horticulturists are far apart in many things. The difficulty is our several conditions. Our country is diversified. Our hills are 200 feet above the bottoms. The hills are a clay soil, the bottoms are alluvial deposit. What will do well on one would be a failure in another. Treatment, too, has much to do with it. I have noticed a difference of at least 10 bushels of corn per acre in one ploughing. I have varieties that I consider good; my neighbor thinks them valueless. Why? Our treatment is different. We feel this meeting was fraught with much that is beneficial.

The election of officers resulted in the election of Homer Reed as president, George W. Holsinger as vice-president; C. A. Chandler, secretary; Fred Espenlaub, treasurer, with the old board of trustees retained.

FRANK HOLSINGER.

The receipt given below is one used by the late T. W. Gaunt of Maryville, Mo., for preventing borers: "Take one gallon soft soap and one pint pulverized sulphur; mix well, then add a strong decoction of tobacco, enough to reduce the same to the consistency of thick paint. Rub the body and main branches of the tree well; pay strict attention to the collar. The soil should be removed two inches down, and then give the tree a thorough dressing with the mixture. Apply through May and June. Repeat the operation in case of rain."—E. F. Leighty.

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No pay until you know it.

After 2,000 experiments I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always, at any stage, and forever.

I ask for no money; simply write me a postal and I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month, and if it does what I claim pay your druggist $5.50 for it. If it doesn't I will pay him myself.

I have no samples. Any medicine that can affect Rheumatism with but a few doses must be drugged to the verge of danger. I use no such drugs. It is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take this risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. Let me send you an order for the medicine; also a book. Take it for a month, for it won't harm you anyway. If it cures, pay $5.60. I leave that entirely to you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

Asked and Answered

J. B. F., Davenport, Iowa.—I wish to prepare a piece of good corn ground, by planting cow peas on it the present year, to be planted the year following to small fruit, especially strawberries. What variety would be best to sow, and how soon in the spring? It is oat stubble now. I had thought to disk it before plowing and sowing. Would it be best to let them ripen, take them off, then disk well and sow to oats, to be plowed under late in the fall? Or better not take them off, but cut them up, by disking, and follow with oats as before? Would it be better to drill or sow them broadcast? Are the peas liable to lay down much? How much should be sown or drilled to the acre?

Answered by Prof. Howard, Missouri Experiment Station: I would advise sowing the Whippoorwill variety of cow peas for the purpose mentioned. Prepare a good seed bed by plowing and working the land as if for a grain crop and sow the peas after corn is planted—no earlier. For this early seeding it would perhaps be best to sow broadcast, about one and one-half bushels to the acre, and not cover too deeply. If specially desired, the crop could be removed and oats sown as suggested, but I would advise turning under the entire crop of peas in the fall and allow them to rot during the winter, which would furnish an excellent supply of humus (decayed vegetable matter) for the succeeding crops of small fruits.

(Also see what J. H. Hale says of planting strawberries after cow peas, in this issue.—Ed.)

H. F. B., Hamburg, Iowa.—I saw in the December issue some matter concerning dust spraying. I want to know how the dust is applied. Is it with an ordinary spray pump? I also want the formula for making the mixture.

Answer: The dust is applied by special machines for this work. Spray pumps cannot be used for the powder. The manufacturers of the sprayers furnish the formula with their machines, or will send it on request.

J. W. M., Sulphur Springs, Ark.—The inclosed "bugs" were taken from short spikes or limbs of my apple trees, and to me were a puzzle. They were evidently impaled alive just for amusement by some bird or by some force other than their own, as they were evidently placed there while alive and none were eaten. The limb, in each instance, is penetrating a vital part. Have you met the like?

Answer by Major Holsinger: The "bugs," mostly grasshoppers, received. The work is undoubtedly by that of the shrike, or more commonly known as the "butcher bird." It is quite common with us and can be seen summer or winter about the hedge rows or fences. In size and color it resembles the southern mocking bird, and by the inexperienced is often mistaken for it. You will notice a marked change in the beak, which is hawk-billed. The habits are very dissimilar, as the shrike impales its victims, as you found these, on sharp spikes. They frequently impale small birds and mice in the same manner. Their intention in so doing is doubtless for a winter supply or when food is scarce. Were it not that they are destructive of bird life, they would be very valuable to both the agriculturist and horticulturist, as they destroy many insects injurious to those industries. The shrike is imitative, imitating the notes of other birds as an artifice to ensnare them. In the Southern states it is considered as very helpful to the planter, as it feeds largely on field mice and insects. It is said that in Russia they are trained by the natives to catch birds and mice.

O. C. M., Clinton, Ky.—(1) Will the Kieffer pear succeed on sandy soil, low river bottom, which overflows? I have a friend who wants to set forty acres in Kieffer in Missouri river bottom. (2) Where can I get Cumberland and Columbian raspberries near me? (3) Give readers of your paper your views concerning nursery stock (apples) that are 3 to 4 years old that have had no work for last two years; trees evidently not worked in order to keep them back in order to sell them.

Answer by Major Holsinger: (1) If the soil is very rich I should hesitate to plant Kieffer. It seems to me that such should be the condition of the bottom lands of Kentucky. If the overflow is long continued would be another objection. Would suggest you find an upland location for your Kieffer. (2) All first class nurserymen handle Cumberland and Columbian raspberries. The former is rather scarce and high in price as yet. (3) I prefer 2-year-old apples for planting, but 3 and 4-year apples can be planted safely, if healthy. Be careful they are not discased in any way. Look carefully for borers. I have planted 4-year trees with satisfaction, they being the overgrown trees in my own nursery. They were too large for one man to handle alone. They were dug with a spade. Should your trees have been run under with a digger they will be objectionable. I never saw good trees thus treated. I would rather transplant trees cut under than to allow them to stand over and transplant afterwards.

A. S. B., Emporia, Kas.—Can you tell why trees, such as apple and peach, will grow to the northeast? I have always set trees so the side having the heaviest limbs will be to the southwest, so as to protect body, and supposed that would help correct the northeast growth, but have been told by the boys who study botany that the side with the most limbs makes the most growth and hence the northeast growth. (2) If such is the case, should I reverse the trees? I slant the body of tree about 20 degrees to the southwest. What can be done to correct growth to the northeast? I have read your paper one year and am well pleased.

Answer by Major Holsinger: (1) Because the prevailing winds are from the southwest. To prevent the tree from growing to the northeast cut back all leading branches. The boys are correct when they say the side of the tree with the most limbs makes the most growth. (2) I can't well see how you will reverse the tree without taking it up and replanting. That would be heroic, I must confess. When a branch starts to lead, just clip back or cut the terminal bud. By following this system your trees will grow upright. Never slant a tree when you plant it, but direct its growth by the above method.

S. J. C., Oklahoma City, Okla.—Please inform through your columns when is the best time to top-graft apple trees to obtain the best results.

Answered by Major Holsinger: Spring is the time to top-graft the apple. Scions should be cut while dormant and kept in a cool place to prevent them starting. As soon as the sap begins to ascend is the best time to do the work. It can be done sooner or later with safety, but I like it best, as the buds are starting the sap enters the graft, and it starts off readily. When the work is done earlier the grafts are sometimes broken by the wind or by birds alighting on them.

J. C. P., Creston, Iowa.—In budding peaches nurserymen try to get as little wood with the bud as possible; too much wood with the bud will be apt to prevent a perfect union.

W. B., Doniphan County, Kas.—We believe the canker worm and its work is fully described in this issue of the Western Fruit-Grower. This is about as complete as any article can be made on the subject, we believe. The canker worms were very numerous on the Missouri side of the Missouri river last spring.

J. A. B., Anadarko, Okla.—What varieties of peach and apple should be planted here, also grapes?

Answer: The Oklahoma Experiment station, at Stillwater, can best advise you as to varieties suited to Oklahoma. We are too far away.

R. B. Henders, Greenfield, Tenn.—Of all the agricultural and horticultural papers which come to my desk, I value the Western Fruit-Grower the most. You can count on me as long as the paper is kept up to its present standard, and I will send some extra subscriptions soon. Have any of your subscribers had any experience in shallot growing? If so, I should very much like to hear from them; how started, when planted, quantity required per acre, winter treatment, etc.

Who can answer the foregoing query? We shall be pleased to publish their reply.

J. H., Sharon, Kan.—A number of Syrians live near here, and they say there is a variety of grape which grows near Damascus which bears bunches weighing ten to twelve pounds each. Can you tell me the name of such grape, price per vine and where I can get them? (2) Can you give me any infromation about Bermuda grass or root cuttings?

Answer: There are grapes which probably bear even larger bunches than those referred to, in Syria. There are larger bunches mentioned in the Bible, for instance. But they will not do here. Even the California varieties are not available here. (2) Write some of the seedmen who advertise in the Western Fruit-Grower in regard to Bermuda grass.

J. C. P., Creston, Iowa.—Will you tell me when to spray for the insect which makes the worms in plums, and with what shall I spray? (2) Can I plant pits from Burbank plums and get the true Burbank?

Answer: It is generally conceded, we believe, that spraying for plum curculio is of little benefit; the better method of fighting it is to place a sheet under the tree early in the morning, when the air is cool, and then jar the tree. The curculio will drop to the ground and "play possum" and is gathered up and destroyed. (2) No, pits from Burbank plums will not produce true Burbanks.

C. L. K., Tyro, Kan.—Colonel Evans says there is no Elberta cling peach. Can he prove it? I have seen what was called Elberta Cling.

Answer: Stark Bros. have a peach claimed to be a seedling of Elberta, of same season as Elberta, of same color and shape, except that it is a cling. They have therefore called it Elberta Cling, just as there is a Heath Cling, Heath Free, etc. Colonel Evans later in the meeting explained that the reason he said there was no such peach as Elberta Cling was because he had never seen it.

A. J. M., Lumberton, N. J.—What effect will Bordeaux mixture have on peach trees which have been sprayed with crude oil? We are compelled to spray in February with crude oil for San Jose scale, and I would like to spray with Bordeaux mixture for fungus diseases before the buds open, but have doubted if it would adhere to trees, as the oil is very lasting.

Answer: We should think the Bordeaux would adhere well enough to prove efficacious, but would advise writing to the New Jersey experiment station for positive information.

J. M., Hitt, Mo.—Are Black Ben Davis and Gano the same variety of apples?

Answer: There has been much controversy over these varieties. Many persons claim they are entirely distinct, while others say they are identical. On page 16 Major Holsinger tells of an examination which was made at the meeting of the Kansas State Horticultural Socity. Major Holsinger has heretofore contended Black Ben Davis and Gano were identical, but now says he has been mistaken; that they are entirely distinct. Read what he says. That is the nearest an official announcement which has been made.

J. M., Hitt, Mo.—When shall I save buds for budding apples an peaches, and when is the time to bud them? (2) How is grafting wax made?

Answered by R. J. Bagby, New Haven, Mo.: (1) Apple and peach seedlings are usually budded in July, August and September. The buds are cut at the time the budding is to be done. (2) For grafting wax: 4 parts rosin, 1 part beeswax, 1 part tallow. Linseed oil can be added to soften for outdoor use.

J. A. D., Perry, Okla.—When is the best time to plant dry apple seeds and how should they be planted? I have planted some at different times, but did not have good success. I have succeeded best with pomace planted in the fall; about 10 per cent grew. (2) When should scions be cut for top working?

Answer by R. J. Bagby: The sooner these dry apple seeds are planted the better. If planted later, it will be an advantage to soak them in fresh cold water for a few days before planting, changing the water daily. (2) Scions can be cut for gratfing at any time they are dormant.

In reply to the query from Mr. E. H. Clark, Canno, Kan., will say that the insects in the twig sent are the larvae of a parasitic ichneumon fly that have infested the original borer and caused its death; hence they are beneficial insects.—J. M. Stedman, Columbia, Mo.

R. M. S., Menominee Falls, Wis.—How can I graft cherry trees? We have thousands of little seedling trees around here. Would they do to graft on their roots? I have a cherry tree called the Riga from the Chase company of Rochester and it is a wonder; very hardy and bears a great big liver-colored late cherry. Have you another name for this fruit?

Answer by R. J. Bagby: The cherry seedlings can be grafted at the crown, and the stocks so grafted should be set in nursery rows and planted so the union of stock and scion is below the surface. The usual splice or whip graft will answer. These seedlings will sprout and this is the objection to their use. We do not know the cherry referred to.

S. B. K., Clay Center, Kan.—I have been lately investigating the subject of cold storage, with a view to home or farmers' use. From the information at hand I conclude that, with perhaps a few exceptions, the summer and early fall ripening fruits and vegetables cannot be thus preserved to advantage. At the same time it appears to me that we can construct rooms that will hold 1,000 bushels and more of the late winter apples, pears and vegetables to very much better advantage and reasonably cheap, and hold them till the next spring and early summer. Could you give information on these points? (1) Would late keeping apples and pears, if put in a room kept at 38 or 40 degrees ripen as usual? (2) Could fruit thus kept be marketed in late winter, spring and early summer in the usual way, or would they have to be rushed from the cold room to the consumers as the perishable berry crop must be? (3) A list of apples and pears that would keep best in such a cold room is desirable.

Answer by L. A. Goodman: (1) Yes, good winter varieties of apples and pears would keep well at 38 if they are picked early enough so that they are not "ripe." Good, sound, perfect fruit will keep if carefully picked, while solid and firm, handled like eggs and stored at once in the cold storage, so they will not begin to ripen. (2) Yes, fruit so kept can be marketed at any time before May in good condition and will keep for a reasonable length of time after being put on the market so that merchants or consumers could easily handle without excessive loss. (3) This list of apples and pears are the best keepers, but some of them are not the most profitable to grow in a commercial way in all localities: Ben Davis, Gano, Willow Twig, Winesap, Gilpin, Clayton, Ingram; medium keeps, Jonathan, Black Twig, Janet; poor keepers, Grimes, Huntsman, York. For pears try Kieffer, Anjou, Lawrence, Nellis.

P. L., Robards, Ky.—I have nearly three acres of strawberries in fine condition. About two-thirds are early berries, Excelsior and Early Michel. I am located 184 miles south of St. Louis. I would like for someone else to advise me what is best to do to try to sell to local market or ship to some commission man in a large city. This will be my first crop if they bear in the spring.

Answer: It is hard to advise one in this matter. If the local market is a good one, that is by far the most satisfactory way to dispose of the berries. St. Louis is usually a poor market, owing to the dumping of great quantities of Southern berries there, but next spring should be a good market. The short crop which is promised in the Southwest will cut down the receipts on St. Louis market. Write some good commission man in St. Louis early and inquire as to the market. But if you can get a good price at home, with no commission or express charges, sell at home.

R. B. E., Addington, Ind. Ter.—I am much interested in fruit growing in Oklahoma and would like some information in regard to setting out an orchard in sod ground. I want information from your readers, especially those who have had experience in former openings. Would like to hear the experience of Mr. Householder of Guthrie. (1) Which is the best way to set the orchard next spring, in ground broke this winter, or to break the ground this winter, put in cotton and cultivate well next summer, then set in the fall? (2) How would it do to break in lands thirty feet wide, run a lister or double moldboard plow in the ditch, leave it until the middle of March and set out (we have an early spring here near the Texas line)? I have my ideas about what few varieties of fruit do best here, but would be glad for any suggestions that might be made in regard to it, or other views in regard to farming on a new claim. I will give the results later on.

Answer by Frank Householder, Guthrie, Okla.—I could not advise the general planting of trees in newly broken sod. However I have planted about forty acres here in Oklahoma in sod ground that was turned over in November and December, planting in the two following months, with reasonably good success; indeed, cherry and peach did well. The amount of work required in fitting the soil for planting does not pay for time saved. The far better plan for R. B. E. would be to break his ground in spring, plant to Kaffir corn (cotton does not do well on sod) and the following fall prepare the ground for planting, plowing his ground as suggested in thirty-foot lands, which should run north and south, plowing out the ditch as deep as possible, going at least one extra round with plow and finishing up by running subsoil plow at least one round in bottom of ditch. This may be left open till February, at which time planting should be done. If a commercial orchard is intended plant fifteen feet apart in rows north and south. Stick close to Ben Davis, with Winesap, Missouri Pippin following. Plant a few York Imperial and M. B. Twig, and don't forget that the salvation of an orchard is through cultivation.

J. F. K., Flora, Ind.—Some time last winter I sent you a piece of pear bark, wanting to know what was infesting my trees. The answer was that it was San Jose scale. I had several trees badly infested with them, but last fall there was a small, yellow insect got into my orchard and destroyed all of the San Jose scale. Would you advise me not to spray in the spring so as to not destroy those insects which destroyed the scale?

Answer by Prof. J. M. Stedman, Columbia, Mo.: In reply to the letter from J. F. K., Flora, Ind., will say that undoubtedly the San Jose scale he mentions was being eaten with unusual rapidity by a species of lady-bug beetle, but I do not think that it would be advisable to leave all the fighting of the San Jose scale to this insect. It would be vastly better if either kerosene or whale oil soap were used during the winter in order to kill the San Jose scale. At this time there would be little or no danger of killing the lady-bug beetles, and they would not have such uphill work to hold the scale in check during the summer

D. J. K., Gorman, Texas.—Will you please give in a little information on a parcel of land that I have in my orchard? It is light, sandy land with twelve to eighteen inches to clay; it has been used for a cow lot for two or three years and it has been in cultivation three years since. Is it good for apples? (2) I have put from two to three cobs under each tree, which were soaked in water thickened with manure. Is this good or not?

Answer by Major Holsinger: It is very hard to say just what would be best at this distance. One should know more about the conditions incident to your surroundings to speak with any degree of certainty. I would think the soil, being very sandy, would be better suited to the peach than the apple. However, the ground having been a feed lot may have been sufficiently enriched to have changed the original conditions so that the aple might do fairly well. I, however, would not think it the best thing to do with such land. Try peaches rather. (2) As to putting cobs under the trees, I can see no possible good that can come of such treatment. Fertilizers, while valuable to fruit trees if intelligently applied, are frequently rank poisons if applied to the roots. In my experience I have found more failures by reason of overzealous care in planting than for any other cause. The chances are largely that if manure is applied to the roots of tree or plant it will die. If applied to the surface and well worked into the soil they become helpful to the plant. Never! never! in planting a tree apply to the roots any litter, manure or other foreign substance.

H. D. O., Martinsville, N. J.—Are there any nurserymen in the West who furnish apple, pear, plum and cherry grafts, budded for spring planting?

Answer: There are a number which make apple and pear grafts to order. See advertising columns of the Western Fruit-Grower. They can also furnish stocks for the other fruits, but must be budded where they are transplanted.

"Where the Dollars Grow on Trees"

is the title of a booklet on advertising just issued by the Western Fruit-Grower. If you are looking for a customer in

THE FARMER WHO GROWS FRUIT

and want to place your name before over 20,000 of the most prosperous farmers in the country, write at once for a copy of this booklet, which will be sent by return mail, together with any other information you may desire.

WESTERN FRUIT-GROWER
ST. JOSEPH, MO.

WE PAY THE FREIGHT
Our prices are right and show just what the goods cost you at your R.R. station or express O. Send at once for new descriptive price list.
New Haven Nurseries, New Haven, Mo.

For Sale---Peach, Apple and Japanese Plum Trees and Grape Vines
Good stock and low prices.
W. H. ROCHELLE. MEDON, TENN.

GRAVES New Early Yellow FREE STONE PEACH
Price list free. W. J. Graves, Originator, Perry, O.

Free INFORMATION ABOUT Hens
By poultry editor of Vick's Family Magazine, Rochester, N. Y. Blank and sample copy FREE

C. S. HARRISON'S SELECT NURSERY
York, Nebraska
Has a superior collection of Evergreens, Trees, Shrubs and Flowers. A fine lot of Columbines, Clematis, Oriental (perennial) Poppies, Beautiful Imported Phloxes, and the finest collection of Paeonies west of Chicago. Nearly 200 varieties. Send stamp for Paeony pamphlet.
Also Rocky Mountain Evergreen seeds.

TO MAKE COWS PAY USE Sharples Cream Separators. Book, "Business Dairying," and catalogue free. West Chester, Pa.

There is an increased interest in the dust process of spraying through the West, and there will be many growers who will try the process this season for the first time. The great demand for machines, for there are few which will apply the dust, will be heavy, and those who wait until late to order are apt to be disappointed. This is the case with nearly everything used by the fruit farmer this season—everything is in demand, and it is a wise man who orders early.

Clyde E. Brown, Rushville, Ill., writes: "I use the following preparation to prevent rabbits from gnawing fruit trees, and wish to have the opinion of your readers as to good or bad results from use of same: One peck lime, 4 pounds sulphur, one-half gallon crude carbolic acid and one-half gallon coal tar." (The use of coal tar is considered rather risky, sometimes injuring trees, while others claim there has been no injury from its use. We believe the best growers advise its use in an experimental way only.—Ed.)

W. F. Schell writes us that he has purchased the entire stock of the corporation known as the Wichita Nursery Association, and will hereafter conduct the business under the name of the Wichita Nursery, giving his personal attention to the business. Mr. Schell is well known to many of our readers, and we predict for him a splendid trade in his section of the country.

Rural Telephones

Believing readers of the Western Fruit-Grower are interested in rural telephones, I want to tell them how our mutual company operates. A telephone is not a plaything nor a luxury, but an actual necessity for the farmer and his family. The way we organized was to get twelve to eighteen farmers interested. We then put up our line. We use native poles, twenty feet or more in length, and erect them ourselves. Each farmer buys his own phone, which can be bought at a reasonable price. These farmer lines are usually six to ten miles long, and connect with two or more towns, where connection can be had with the city exchange. For this connection we pay an annual fee of $1.25 to $1.50, and we are then in connection with the entire list of subscribers of the different exchanges. Outsiders who wish to use the phones pay 10 cents for each conversation. The cost for putting in the line is about $12 to $18 per mile, where we do the work. Our mutual company is not yet two years old, and there are now over 300 miles of wire. The service is satisfactory, and the telephone is worth much more to our farmers than is telephone connection to residents of the cities. JOHN BOWERS.
Sigourney, Iowa.

Immature Tomato Seed

Experiments with Cook Favorite tomatoes in 1891 with seed from mature and immature fruits, says E. S. Goff, in Wisconsin Experiment Station Report of 1900, through six generations, indicated that the use of immature seed reduced the growth of the plant, increased its prolificacy and promoted early maturity. In the fall of 1891 samples of seed from mature fruit and from fruit that had not commenced to redden, were saved from Cook Favorite, Little Gem and Potomac varieties. With the Potomac variety, the seed from fruit that had just commenced to redden was also saved. These were planted the following season and seed again saved for the next year's crop, the mature seed being taken from plants grown from the mature seed, and the immature seed from the plants grown from the immature seed. This method of selection has been continued up to the present time. The yield of fruit per 100 pounds of vine, percentage of crop that reddened before frost and the percentage of fruit gathered in the first four pickings, from both the mature and immature seeds, are arranged in tabular form. A study of these data shows results entirely at variance with those reported in 1891. The use of the immature seed in this second experiment had no uniform effect "on the prolificacy or the maturing season of the plants, and no effect could be seen at any time upon the vigor of the plants."—Experiment Station Record.

Catalpa in Nebraska

Theo. Lemm of Plattsmouth, Neb., says he believes farmers should grow their own fence posts, etc., but gives it as his opinion that it is not wise to plant catalpa in dry, exposed locations. Mr. Lemm also believes that seeds should be selected from only the straight-growing trees. Where planted in low, rich ground, he says the catalpa is all right. Continuing, Mr. Lemm says: "Can catalpa wood be used to make hoe handles, fork handles, etc.? I don't like to use tools of this class on account of their heavy handles. I once attended a fair of considerable importance at a town in Germany, at which were exhibited American garden tools, with ash handles, but the Germans all condemned them on account of the heavy wood used in the handles. The Germans make handles of a willow, looking like our red elm, but very tough and at the same time light, like all the willows. The common name of this willow was Shot willow. Can this willow be grown here or can we not get some lighter wood from which to make handles for our garden tools, pitchforks, etc.?"

In the December number of the Western Fruit-Grower a cut was printed showing six new apples, among them the "Nixonite." I have heard this is the same as the old Ohio Pippin, afterward renamed Shannon. If this be so, it should be generally known and the last-acquired name dropped.—B. Buckman, Farmingdale, Ill. (We have heard that Nixonite and Ozark Mammoth are the same, but not that it and Shannon are identical. Why can say? —Ed.)

Budding peach trees in the Tennessee Wholesale Nurseries, Winchester, Tenn., July 10, 1901. Largest peach tree nursery in the world. J. C. Hale, Proprietor.

February Issue of The Western Fruit-Grower

Next month's issue of the Western Fruit-Grower will be about as good a one as is this number. Either is worth the price of a year's subscription. Among other things the February number will contain:

Stenographic report of Roland Morrill's talk before the Illinois Horticultural meeting on "Peach Culture."

"Fighting Apple Scab," by Prof. J. C. Blair of Illinois, giving, also, full directions for the proper making of Bordeaux mixture.

"Luther Burbank and His Work," a special illustrated article of great interest.

J. H. Hale has promised another article telling of the New York State fruit-growers' meeting.

Report of Nebraska Horticultural meeting.

And there will be other valuable matter which is crowded out of this issue.

If your subscription is not paid up, send the money today.

One Year for 50 Cents Three Years for $1.00

Note the subscription must be in advance to secure the three-years-for-$1 rate.

If you receive this paper as a sample copy, subscribe at once. If you are now a subscriber and your time has expired, renew today. We want your cooperation and help in building up a great horticultural paper.

Just at the Right Time

The Western Fruit-Grower has answered all horticultural questions as they come to my notice or mind. The articles are always timely—neither too soon nor too late.—E. C. Fawcett, Salem, Ohio.

I have been taking fruit papers for many years, but the Western Fruit-Grower is decidedly the best I ever saw. One grand feature is that it gives you the information you want before time to use it; other paper give it several months afterwards.—R. G. Robertson, Marshall, Mo.

If you are not now a subscriber, send your subscription today—50c a year; three years in advance for $1.

PRICKLY ASH BITTERS cures the kidneys, regulates the liver and purifies the bowels. A valuable system tonic.

HOMESEEKERS' EXCURSION.

Tickets to nearly all points in the United States on sale at all ticket offices of the Chicago Great Western Railway on the first and third Tuesdays of January and February at the low rate of one fare plus $2.00 for the round trip. Good to return in 21 days from date of sale. For detailed information address H. I. Fay, Ticket Agent, St. Joseph, Mo.

NO TRANSFER AT CHICAGO.

All trains of the Baltimore and Ohio, Lake Shore & Michigan Southern and Nickel Plate railways use the Grand Central Station at Chicago. Patrons of the Chicago Great Western Railway desiring to go east via any of these roads will avoid transferring.

A Bloomless Apple

The December number of the Fruit-Grower ridicules the idea of a seedless, bloomless apple. We chance to be in a position to enlighten the editor on this subject. The apple has seeds, but comes without bloom. It originated with Hughy Reece in Johnson county, Tennessee, a quarter of a mile from the North Carolina line. The tree is fifteen inches through at the ground; strong, healthy, upright; twenty feet high, with boughs hanging down to a man's shoulders. The bud that produces the apple is not oval like a bloom bud, but long and pointed. The fruit is sweet, ripening in early autumn, it is of good size and fair quality, but in the parlance of the vicinity it is a little "drawn-mouthy" before thoroughly mellow. The apple is conical, but injured in shape by an indentation that girdles it just beyond the center toward the seed end. The seeds are frequently between this girdle and the seed end and very near the surface. At the base of each little ear-like leaf that helps to encircle the seed end of the apple is a lobe or bump, as if the leaf had been attached, at right-angles, to the edge of an apple seed and the sharp end of the seed stuck down in the fruit.

Reece postoffice is in fifty yards of this tree; and the postmaster, Mr. John Meadows, owns and occupies the place.

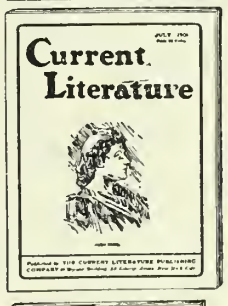
We want some skillful fruit-grower to cross this fruit with something else and produce a tree that will bear potatoes, for we are tired of diggin' taters anyhow. S. M. DUGGER,
Banner Elk, N. C.

Don't complain because this issue of the Western Fruit-Grower is a little late. It has taken lots of work to get out this number, and the capacity of our plant was taxed to the utmost. Nearly five tons of white paper was used for the January number. It will take lots of new subscribers to pay for this paper and the other expenses. We hope to receive a list from every reader.

GET A HOME IN Southwestern Colorado.....

Under co-operative irrigation; abundant water, government land, fine fruit country, mild and healthful climate. For particulars address

Secretary, Colorado Co-operative Company Pinion, Montrose Co., Colorado



Clubbing Lists

The Western Fruit-Grower has arranged some attractive clubbing offers for its readers, at very low prices. In every clubbing offer remember a three years' subscription to the Western Fruit-Grower is included. Send today.

	Reg. Price	Our Price
OFFER NO. 1— Western Fruit-Grower and Success.....	$2.50	$2.00
OFFER NO. 2— Western Fruit-Grower, Success and Cosmopolitan Magazine ..... Leslie's Monthly, The Household or Good Housekeeping may be substituted for the Cosmopolitan in this offer.	$3.50	$2.50
OFFER NO. 3— Western Fruit-Grower, Success and any two of the $1 Magazines..... (Cosmopolitan, Leslie's Monthly, Good Housekeeping, The Household.)	$4.50	$3.00
OFFER NO. 4— Western Fruit-Grower, Success and any three of the $1 Magazines.....	$5.50	$3.50
OFFER NO. 5— Western Fruit-Grower, Success and Current Literature	$5.50	$3.00
OFFER NO. 6— Western Fruit-Grower, Success and Leslie's Weekly	$6.50	$3.75
OFFER NO. 7— Western Fruit-Grower, 3 years, Leslie's Popular Monthly, 14 months, Art Calendar, Vick's Magazine, 1 year.....	$3.90	$2.00

Subscription to Western Fruit-Grower in each offer is for three years.

All others are for one year unless otherwise stated.

Success is a splendid illustrated monthly—$1.00 a year. Cosmopolitan is one of the leading magazines—monthly, $1.00 a year. The Household is a monthly magazine devoted to home-making—$1.00 a year. Good Housekeeping is somewhat along the same lines—monthly, $1.00 a year. Leslie's Monthly is one of the great modern monthlies—$1.00 a year. Current Literature is the leading literary monthly—$3.00 a year. Leslie's Weekly gives one a pictorial record of moving events at home and abroad—weekly, $4.00 a year.

Order by number, and write name plainly. Send cash with order, in form of draft, money order or registered letter.

Western Fruit-Grower
St. Joseph, Missouri

MINNESOTA FINEST STRAWBERRY PLANTS

Headquarters for Northern Grown Sample Strawberry Plants, $2.50 per 1000. Gandy Johnson's Early, Warfield, Lovett, Crescent and Beder Wood, $2.00 per 1000. One half dozen by mail, postpaid, 10c. Of Gandy, Sample, Rough Rider, Johnson's Early, Senator Dunlap, Warfield, Lovett, Aug. Luther, Nic Ohmer, Crescent, Splendid, Michel's Early, Beder Wood and Ridgeway, or the 11 kinds, post paid, $1.00. Largest mail order plant nursery in the North. 100 varieties. Catalogue for a 2c stamp. Address

North Star Strawberry Plant and Fruit Farm
Wright Co. (Strawberry Specialist.) COKATO, MINN.

1902 SEEDS. This great Western seed house offers a complete line of seeds for the farm and garden in 1902. Everything new, fresh and reliable and the largest stock west of the Missouri River. Spelz and Macaroni Wheat, Alfalfa, Kaffir Corn, Cane and Millet Seed and other grains and grasses. Try our Kansas Standard Tomato. Earliest and best variety grown. Our illustrated catalogue free. Write for it.

Kansas Seed House F. BARTELDES & CO. Lawrence, Kan.

Notes from Benjamin Buckman

I notice a tendency among your correspondents to belittle the injury to plants caused by plant lice. As I see it, I would place it scarcely behind the injury done by blight. It is here among the most destructive and least manageable of all of our orchard troubles. It does not follow that because a tree finally grows and assumes a reasonably thrifty appearance, despite aphides, that it is doing as well as it should. The millions of lice that are getting their living from top or root, summer and winter, are sucking from the life blood of the tree. Of course, the effect is more noticeable while the trees are small. Here a 4-year-old tree of some varieties is only as large as one of 3 years should be, and I am satisfied that a tree once infested is always infested till it dies. Some trees are killed outright.

Here is one of the causes of young trees being blown over by the brisk spring winds. The fine threading roots and some or many of the larger ones are brittle or dead, and—over the tree goes. But if the young tree stands, and leans and young shoots start with fair vigor, despite the injured roots, soon the tell-tale ant is seen hurrying up and down the body of the tree, and then you may look for the curled leaf, with the transplanted aphis ready for his summer's work in the top of the tree. Here the multiplication table comes in. You may spray with tobacco water or a soapy wash and kill some of them, but this everywhere present ant is ready to found another colony. The ant is a resourceful fellow and not to be discouraged—any more than a natural politician (I know this is putting it strongly).

The end of the summer, even with spraying, shows some aphides, and if you have not thoroughly sprayed, the smoky appearance of the stunted, curled foliage proclaim that the tree is in pretty bad shape. It has long been held in other countries, as New Zealand, Australia, etc., that the roots of some varieties of apples were practically resistant to the wooly aphis, or as they are called, "American Blight," and the Northern Spy with a few others are there used as a stock upon which to work other varieties.

It is high noon time for us to pay some attention to this idea here. Experiment stations should learn the comparative degree of resistance possessed by our different vareties. I believe that a variety that is worked on a thoroughly resistant kind is worth more than twice as much as one where no such precaution has been taken.

Root rot is probably a distinct disease, yet I venture that many trees are accused of dying from root rot when the primary cause was root aphis. How widely spread among our wild trees, shrubs, weeds, is the apple root aphis I do not know, but if I were to start a new orchard, in a new place, I should use as much precaution against introducing the aphis as I would against the San Jose scale.

There is one thing more which I think worth while to notice. Some varieties are more resistant in the top than others. In a row where I had last spring stem-grafted about a hundred varieties, one kind would be but a ball of smoky-colored curled leaves, while its neighbor would be entirely unaffected. On Hamilton and Matthews crabs not a leaf was curled. Whether a resistant root means a resistant top I do not yet know.

In the November number of your paper you somehow made the mistake of listing Oldenburg and Gano as showing no blight. I would not mention it, but others, judging by this, may discredit the whole. They were not marked simply because I missed them in passing through the orchard. Oldenburg blights in blossom considerably and should be marked about 4. But I never knew a tree of this varety to die from blight. Perhaps there are others, especially in Iowa, who have had a different experience. This variety will stand as much abuse and cold and still thrive as any variety I know of. Nor does there seem to be any use for a knife or pruner, as it grows naturally just about open enough and makes a good shaped, symmetrical tree.

Does any one know anything about the "Fowler" pear? I received scions of this variety in 1893 from a Ludwig Henks of Southern Illinois, whom many of your readers will remember as originating the "Hero" grape, which was supposed to be a sport of the Concord. He was an enthusiast in fruit and especially grape growing, and took many first premiums at the St. Louis fair. I think that all of my Fowler trees are dead from blight, but the fruit seemed to me to be of such exquisite quality that I wish to know whether others have fruited it and whether they give it as high a rating for quality as I. The tree is spreading and vigorous, the fruit small and unattractive in color, but the flesh is fine, melting, juicy, rich, perfumed and delightful—better than Seckel, to my taste. I received many varieties from Mr. Henke, some of which I think he introduced from Germany, but none approached tre Fowler in quality.

Does any one know the northern, southern and western limits of the pawpaw and American persimmon? Eastward they reach the coast. Are either of them native to any part west of Central Kansas and Nebraska? Can pawpaw suckers be successfully transplanted or can even seedlings that have attained a height of four feet?

Who in the North has had reasonable success in grafting or budding the hickory and pecan?

Give average diameter and the largest variety of American persimmons.

BENJ. BUCKMAN.

(Who can answer Friend Buckman's queries? Likely A. H. Griesa of Lawrence, Kan., can do so.—Ed.)

Get Ahead of the Canker Worms

Elsewhere in this issue will be found an article which tells about the canker worm and its work. This article gives, as do all articles on the subject, the first remedy for the pest to be the preventing of the ascent of the wingless female—keep her from climbing the trunk and depositing her eggs on the twigs, and there will be no worms on the foliage. The female, being without wings, cannot pass a barrier on the tree trunk. The best barrier is something which is sticky, and which will remain sticky. Bowker's Bodlime, made by Bowker Chemical Co., Boston, Mass., is the best preparation for this purpose. It is applied directly to the trunk, remains in a sticky condition, and is effective. Wherever it his been tried reports are that it is a success.

Shade trees at Hanover, N. H., have suffered severely in recent years from the attacks of canker worms. Last year the village authorities used Bodlime, and the Village Commissioner P. R. Bugbee writes as follows: "We used over 1,000 pounds of Bodlime on the shade trees of the village this spring. We found it very effective, and its thorough use is all that saved our trees from the ravages of the pest."

From Washington, D. C., W. Curtiss, Esq., writes: "I would say that Bodlime was effective in preventing damage by the canker worm and black ants. I am much pleased with all the preparations received from your house."

Don't delay the protection of your trees. Write Bowker Chemical Co., Boston, Mass., today. The moths must be caught before they climb the tree; once they are up it is too late.

Opportunity for Settlers

Away down in Southwestern Colorado, interspersed with mountains and valleys, is an opportunity for ideal homes. Portions of the country are somewhat isolated, and until recent years, almost entirely neglected. Twenty years ago it was the exclusive home of the Ute Indian. Reluctantly the reservations were ceded to the United States government, and thrown open to settlers. Irrigation being necessary, those valleys where water could be most cheaply diverted from its course and turned upon the soil were soon occupied by the settler. As would be natural to conclude, where greatest obstacles were to be encountered in building ditches, the land was left undisturbed till the last. Tabequache (pronounced Tabwash) Park was one of these neglected places. It may properly be classed as table land, as it lies about 300 feet above the San Miguel river bed. The expense involved in building a ditch fifteen miles long through a rocky country, requiring much blasting, fluming and trestling, is the chief reason one of the finest tracts of land in the state has been left till this late day for the Colorado Co-operative Company to reclaim by irrigation. This company is composed of people of very moderate means. Their object is the acquirement of independent homes. Labor is their chief capital. Their willingness to work, backed by strong faith and indomitable perseverance, has accomplished a greater part of the labor required to deliver the water on Tabequache Park. With present facilities at hand the prospects are good that within little more than another year water will flow through the ditch the entire distance to the Park. There is still a chance for several hundred settlers to secure land at government price, and acquire most of a water right by their labor. When the ditch is completed this opportunity will have vanished. The company will then need neither the money nor the labor it now requires in the completion of its great enterprise.—F. B. Logan, Sec. C. C. Co., Pinon, Montrose Co., Colorado.

Apples for the West

Everything considered, it is extremly doubtful if any apple could be better suited to the conditions of the great Mississippi Valley and adjoining country tran the well known and highly prized Jonathan. Being perfectly hardy and well adapted to and productive in all soils it becomes at once one of the most desirable of all the long list of apples for this locality. The fruit grows to good size here, is very regular in shape and is very tender and juicy, with a rich vinous flavor. The fruit is thin-skinned, smooth, and the lively red and dark red stripes make it a handsome looker and a good seller in the market. The York Imperial is anotrer of the winter apples which is adapted to this Western country. The fruit is of medium size, oval in shape, the skin is greenish yellow, well covered with bright red and the flesh is crisp, tender and juicy. It is a strong, hardy tree and an enormous bearer, the fruit clinging well to the tree. Above all, it is a good keeper, and as it retains its flavor well it is specially well adapted as a late market sort. This apple should be included in the list of every farmer or fruit grower at the next planting. A splendid stock of both trese popular varieties have been grown and may be had from J. G. Harrison & Sons' Nurseries, Berlin, Md. Since they are specialists in this line our readers may expect to secure fine stock from them. They are also in position to supply strawberry plants of all the leading varieties in any desired quantity. Write them for catalogue, prices, etc.

A system regulator is a medicine that strengthens and stimulates the liver, kidneys, stomach and bowels. PRICKLY ASH BITTERS is a superior system regulator. It drives out all unhealthy conditions, promotes activity of body and brain, restores good appetite, sound sleep and cheerful spirits.

Say! I have 400,000 berry plants for sale, spring, 1902. Strawberries, raspberries. Catalogue middle February.

B. F. SMITH

P. O. Drawer C., Lawrence, Kas.

1,300,000 Strawberry,

Raspberry, Blackberry, Asparagus, Early Cabbage and Tomato plants. 50,000 Lucretia Dewberry. Order our 1902 Catalogue at once, and see our prices, discounts and premium plants we give away to our customers.

Caleb Boggs & Son, Cheswold, Del.

Nebraska Trees and Plants

COMPLETE ASSORTMENT OF HARDY STOCK adapted to the West. STRAWBERRY and RASPBERRY plants at wholesale prices. Free catalogue. Mention this paper.

North Bend Nurseries

North Bend, Dodge Co., Neb.

OOM PAUL

NEW SEEDLING STAWBERRY

Six giant berries from one plant filled a quart, for which $10 was paid at our field meeting, June, 1901. Send for catalogue, free. Introducer,

T. C. KEVITT, Athenia, N. J.

SEEDS BUY SEEDS THAT WILL GROW

Five Pkts. FLOWER SEEDS, Giant Cyclamen, Giant Pansy, Giant Verbena, Double Dahlia and Poppy, 7c. 5 Pkts. VEGETABLE SEEDS, 10c. PLANTS: 6 Roses, 25c; 4 Pelargoniums, 25 c; 6 Begonias, 25c. Catalogue and present free for names of seed buyers. A. C. Anderson, Columbus, Neb.

THE GARDNER NURSERY CO.

OSAGE, IOWA.

A view in our Nursery Park. This ground was virgin prairie when we located here.

If you want Trees, Shrubs or Plants of any standard varieties in any quantities grown in the

BLIZZARD BELT

Insuring such hardy qualities that they will withstand the severest cold or drouth, do not fail to get our

OUR FREE CATALOGUE

Giving prices on our Hardy Stock. We prepay freight and guarantee satisfaction and safe delivery.

We are also sending out an illustrated booklet, from which the above picture is taken. It shows many beautiful scenes in our Nursery Park. Write for a copy.

Gardner Nursery Co.

Box 132. OSAGE, IOWA.

THE

Virginia Beauty Apple

This is one of the very best market apples grown. Of high quality, beautiful color, a good keeper, it deserves a place in every orchard. It is always compared with Jonathan, but is more desirable, because it hangs on the tree better and keeps longer, while fully as good quality.

We have a full stock of

Apple, Peach, Plum, Pear and Cherry Trees

as well as small fruit plants, grape vines, etc. Our trees are propagated from selected bearing trees, and always give satisfaction. Our catalogue, containing full list of stock, with full description of Virginia Beauty and other varieties of fruits, is free for the asking. Adrdess,

The Titus Nursery

Nemaha, Neb.

Charles C. Nash's

Raspberry Plants : : : :

Will be Shipped all over the United States and to Foreign Countries

Over 40 Varieties

If you Want a Dozen or Ten Thousand I Would be Pleased to Fill Your Order

Strawberries In limited quantities. A large stock of Warfield's No. 2 and Michel's Early, grown on new land.

Blackberries Snyder, Western Triumph, Eldorado, Ancient Britton, King, Ohmer, Taylor, Wilson, Agawan, Kittatinny, Stone, E. Harvest, Lawton, Minnewaski, Mersereau, Maxwell, Iceberg, Jerry Reedy, etc.

Grapes Agawam, Brighton, Campbell's Early, Concord, Delaware Moore's Diamond, Niagara, Worden, etc.

GOOSEBERRIES Standard old and new varieties.

Nurserymen and Dealers

Can have their small fruit plants tied up in bundles of 1, 3, 6, 12, with printed label attached to each, at small additional cost, which saves much time and labor in billing out orders.

Root Cuttings A surplus of some varieties of Blackberry and about 500,000 Columbian, Conrath, Ohio Gregg, Nemaha, Ctuhbert, Turner, etc.

Early Orders are of Much Importance to You.

THREE RIVERS, MICH. **Charles C. Nash**

Hopewell Nursery and Seed Farm

T. C. FURNAS & CO.

Nurserymen, Florists, Seedsmen.

FURNAS' TREES, PLANTS AND SEEDS ARE RIGHT IN PRICE AND QUALITY.

Our Seeds are carefully tested as to germinating power and purity. Our seeds are full of life, sure to grow if given a fair chance.

Our catalogue is free. Send for it. Send us a list of your wants in the nursery line for prices. In APPLES we can make favorable prices on BEN DAVIS and MANY OTHERS. PEARS at prices that are RIGHT.

Early King Blackberry is a money maker. Very early, sweet, large, productive, hardy; no core. Our free catalogue tells all about it.

To increase our mailing list we make the following special offers. All our packets of Seeds are LARGE, WELL FILLED packets. No cheap half-filled packets at any price. Any part or all of the following offers. Send now. These offers will appear but once. EACH OFFER IS SENT POSTPAID AT PRICES GIVEN:

OFFER NO. 1.
For 10 cents and ten addresses of plant, seed or tree buyers, 4 Early King Blackberry Plants.

OFFER NO. 2.
For 10 cents and names:
5 Johnston Early Strawberry plants
5 Klondike Strawberry Plants
5 Gladstone Strawberry plants

OFFER NO. 3.
For 10 cents and names:
One Early King Blackberry plant
Two Campbell Early Peach trees

OFFER NO. 4.
For 10 cents and names:
1 Packet Giant Pascal Celery
1 Packet "Our Best" Strain Early Jersey Wakefield Cabbage
1 Packet Bridgeport Drumhead Cabbage
1 Packet Atlantic Prize Tomato, best early
1 Packet New Stone Splendid, Main Crop variety
1 Packet Black Seeded Simpson Lettuce, tender, sweet

OFFER NO. 5.
For 10 cents and names:
1 Packet Hopewell Mixed Sweet Peas, all colors, no finer collection anywhere.
1 Packet Cobea Scandens Best
1 Packet Canterbury Bell, double mixed
1 Hollyhock, double, best mixed
1 Packet Sweet Alyssum
1 Packet Balsam, choice mixed
1 Packet Calliopsis, fine mixed

OFFER NO. 6.
For 25 cents and ten names, Offer No. 4 and 5 and the following added:
1 Packet Essex Hybrid Squash, sweet, good keeper
1 Packet Ruby King Pepper, sweet, large
1 Packet Radish, long scarlet
1 Packet Watermelon, dark, juicy, rich grower, large; fine quality
1 Packet Muskmelon, Surprise; yellow flesh; delicious

OFFER NO. 7.
For 25 cents and ten names the following strong, well grown plants and bulbs:
1 La France Rose
1 Bridesmaid Rose
2 Geraniums
1 Rubra Begonia
3 Fine mixed Gladiola bulbs
1 Century Plant
1 Wonderful Carnation
1 Packet Hopewell Sweet Peas

ONE EACH OF THE SEVEN OFFERS WILL BE SENT FOR 85 CENTS AND 15 ADDRESSES.

We always put some extra packets in every order. If you are in any way interested in Horticulture or Floriculture we want your address. Advice on any subject in our line free.

T. C. FURNAS & CO.

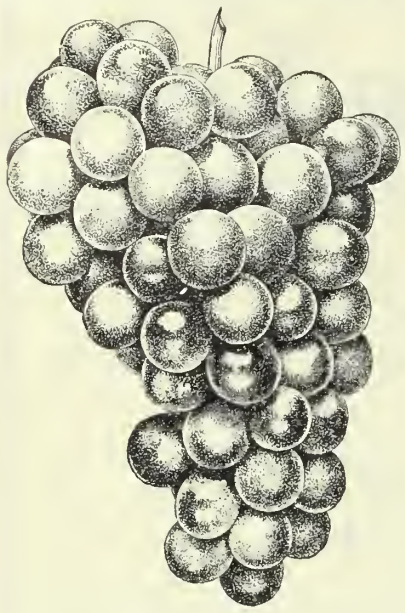
Rural Route No. 2. SHERIDAN, IND.

New Offerings for Spring

The new catalogues of the seedmen and nurserymen are out, and while the list of new things in vegetables, fruits and flowers is not so large as is often the case, a good showing is made. A number of the seedmen failed to send their reports, and our list is not as complete as we had hoped. Still, we believe the feature is a good one, and will seek to improve it every year.

McKINLEY EARLY GRAPE.

This new grape is offered by Allen L. Wood, Rochester, N. Y. It is a white grape of the Niagara type. For many years Mr. Young, the originator, of Niagara County, N. Y., has labored to produce a large early white grape as large as the Niagara and as productive, strong grower, with robust foliage. It is a cross between a Niagara and Moore's Early, and originated near where the Niagara orig-



inated. It is fully ten days earlier than the Niagara grape, side by side; bunches very large and compact: berries very sweet with no acid around the seeds and no puckery taste in the skin. Just think of it, a grape ten days earlier than the Niagara grape about the same size and a compact bunch and as strong a grower as the Niagara. The bunches are very large, usually shouldered; compact and handsome; berries large, nearly round; skin thin, green at first, turning to yellow when fully ripe, but very tenacious, bearing handling and shipping. It has very remarkable keeping qualities for an early grape, and hangs on the vines sound and perfect for six weeks or more after ripening, with no tendency to shell off or fall from the stems. As good a shipper as any other American grape. Mr. Young has tested it in every way sufficient to warrant its introduction and we are upheld in our estimate of its great value by all fruit growers who have seen it in bearing in Mr. Young's vineyard. And at this writing, and even before we had any plants to offer, we have received hundreds of letters asking prices of vines.

Mr. Frank L. Young, the originator, says: "I planted the seed which produced this grape in the year 1891; it is a cross between the Niagara and Moore's Early; it ripens ten days earlier than the Niagara; vine vigorous, healthy, productive; foliage thick and leathery; bunches medium, uniform, compact; skin thin green at first and turning to yellow when fully ripe. It differs from other grapes in that the pulp has no acid and parting easily from its few seeds."

We guarantee the McKinley Early to be as strong a grower as the Niagara and fully ten days earlier and the richest flavor of any grape ever put on the market; a strong, vigorous grower, thick, healthy foliage and perfect self fertilizing blossom. We will offer a few hundred 1-year vines of this grape in the spring, 1902.

KLONDIKE PEACH.

A limited stock of this marvelous peach is offered by M. J. Graham, Riverside Nursery, Adel, Iowa. The Klondike was grown from a pit of Old Mixon, pollenized by Heath Cling, and combines the rare qualities of those fine old varieties together with great hardiness of tree. S. B. Heiges, late United States pomologist, says: "Klondike, to my knowledge, is the most beautiful late white peach in existence." Mr. Graham also offers Climax plum, North Star apple and other valuable new fruits. Send for his new catalogue.

RED KING AND OWENS GREENING APPLES.

These varieties are being introduced by the Midland Nursery company, Des Moines, Iowa, this season for the first time. The Red King is not a stranger in Iowa. It is a seedling grown in Jasper county, the old tree being 30 years of age. Some readers probably may know it by the name of Brown's Seedling. In report of Iowa Horticultural Society for 1897, page 137, the Red King (or Brown's Seedling, as it was then called), scored as follows: Size No. 1, quality No. 1, bearing No. 1, keeping No. 1. Owen's Greening at the same meeting scored as follows: Size No. 1, quality No. 2, bearing No. 1, keeping No. 1. It is a pretty good apple, not as good, however, as the Ideal and the Red King.

We purchased some three years ago the exclusive control of both of these seedling trees, and are propagating and putting the trees on the market. We named the one Red King, the other Owen's Greening.

MIDLAND NURSERY COMPANY.

GRAVES PEACH.

This is introduced by W. J. Graves of Perry, Ohio. This peach has now been tested ten years on the farm of the originator. The Graves peach ripens in August. The fruit is round and smooth, red in color, flesh yellow, fine grain, sweet and a freestone. The foliage is large dark green. The tree is upright and hardy, bearing when 2 years old. One man of Rochester, N. Y., when sending for a circular said: "When I was in Washington, D. C., I was told that the best peach that had ever been sent the department for eating was the Graves."

PENNOCK HYBRID CHERRY.

This is the name given the exceremely interesting but somewhat anomalous fruit hybridized by Charles E. Pennock, and now offered for more general testing by the Pennock Nursery and Seed company. It is cherry; it is plum; it is neither. It is a whole new class of and in itself. Mr. Pennock has been looking for years for results markedly good from the crossing of Improved Dwarf Rocky Mountain cherry (Prunus Besseyi) on the better sorts of cultivated plums of Americana and Domestica varieties, and the one in question

is the best of thirteen successful crosses. It is Prunus Besseyi X Moore's Arctic, and shows the better qualities of both parents.. Size and flavor intermediate; color bluish purple with light bloom; flesh firm; pit like cherry; tree upright, spreading and symmetrical. The hard winter of '98-'99 showed it to be hardier than either parent, which both suffered some, while the Hybrid gave absolutely no sign of injury. Bulletin No. 50 of the Colorado State Agricultural College says of it: "May prove an acceptable addition to the list of varieties. Flesh firm, of excellent flavor, possessing none of the astringency so noticeable in the fruit of the other hybrids. It is worthy of further trial."

THE MAMMOTH BLACKBERRY.

A letter from Ronsse & Bollinger, Riverside, Cal., who advertise the Mammoth blackberry in the Western Fruit-Grower, says that there is little doubt that this new variety will succeed as well in this section as it has in California, where it has certainly made a record for itself. The berry is very large, of excellent quality, and deserves a trial by all who grow fruit. It is claimed it is larger than the largest of the dewberries, and will compete with this fruit in any market. Our readers should see the ad of Ronsse & Bollinger lsewhere in this issue, and write for some plants of the Mammoth for trial.

NEW THINGS FROM T. C. FURNAS & CO.

Early King Blackberry—A strong, free grower, perfectly hardy, very productive; berries large, sweet ,with no core; very early; a profitable market variety.

Furnas Strain Jersey Wakefield Cabbage—The best of this kind.

Freddie Geranium—An exceedingly strong grower and free bloomer; splendid winter bloomer.

Coronet Rose—White, a constant bloomer, indoors or out; good grower, just the variety for lots of bloom, with little trouble.

The above are offered by T. C. Furnas & Co., Sheridan, Ind.

BURPEE'S OFFERINGS.

W. Atlee Burpee & Co., the seedmen of Philadelphia, have a number of new things listed in their splendid catalogue for 1902. This firm is always a leader in the origination and introduction of new vegetables and flowers, and some of the very best sorts have come from this firm, as the stringless green-pod bean, and others.

In vegetables, a new egg plant, Black Beauty, is offered; it is ten days earlier than New York Improved Purple, is very attractive in color, and great claims are made for it. Early Baseball cabbage is a new sort sent out this season for first time; it is claimed to be very early, with solid, round heads, hence its name. Another new cabbage is Danish Round-Head, which is slightly earlier than the well known Danish Ballhead, with a shorter stem. Crimson Globe beet and Brittle wax beans are listed; the beet is claimed to be of extra quality, and the bean is very prolific, with pods which are absolutely stringless. Early and Late Stonehead cabbage are two new sorts for the different seasons, as indicated by the name. Golden Bantam is a new sweetcorn, said to be very early, of excellent quality and a splendid bearer. Coy's Cumberland cucumber and Pink Prizetaker onion are additions to the list of vegetables. This year Burpee & Co. introduce a strain of watermelon originated by H. A. Halbert of Texas, who has for a long time contended for an improvement in quality of our watermelons. The sort now introduced is Halbert Honey melon, and it is highly recommended.

In flowers there are new nasturtiums, coleus, sweet peas, including a number of dwarf and bush sweet peas; new dianthus, new aster, balsam and begonia. The catalogue of Burpee & Co. is always a good one, with much interesting matter, and this season it is fully up to the established standard.

NEW JAPAN WALNUT "EMPEROR."

This is a new nut introduced by the American Plant and Seed company, Nashville, Tenn., who write: "This new variety of Japan walnut was obtained by selecting a lot of seed

Are You With Us?

Many readers of the Western Fruit-Grower have sent us the names of friends who are interested in fruit culture, and to many of these sample copies of this issue are sent. We want every farmer in America who grows fruit to see a copy of the Western Fruit-Grower and to have an opportunity to subscribe.

If any of our readers receive two copies of this issue, they will know the extra one is sent them to give to a neighbor who is interested in fruit culture.

IF YOUR TIME HAS EXPIRED, YOU SHOULD RENEW AT ONCE. The date on your address slip shows when your subscription expires.

If your name is not now on our list, we shall be pleased to place it there. No one who grows even enough fruit for family use can afford to be without the paper. Each number is worth the price of a year's subscription. To those who wish to subscribe for three years in advance we make a special offer of

Three Years, - - - $1.00
Single Subscription, - - .50

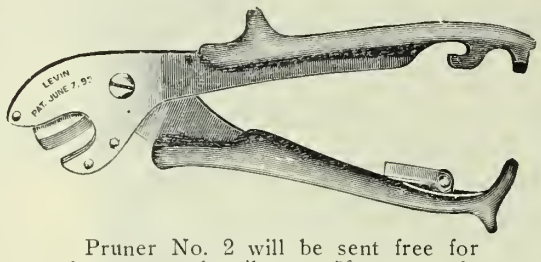
Other splendid issues are being prepared, and your subscription should be sent today, so you can have a complete file for the year.

Remember, the offer of three years for $1 applies only to subscriptions paid in advance.

THE WESTERN FRUIT-GROWER
ST. JOSEPH, MO.

Need Pruning Shears?

Pruner No. 1 will be sent for two new subscribers at 50 cents each, or will be sent postpaid for 75 cents cash.



Pruner No. 2 will be sent free for three new subscribers at 50 cents each, or will be sent postpaid for $1.00 cash.

From the present time until spring pruning shears will be in demand; grape vines, bush fruits, etc., must be cut back before buds open. Realizing that most of the readers of the Western Fruit-Grower will need a good pair of shears, we have arranged to furnish the celebrated Levin Pruner. This pruner is made in two sizes and is guaranteed by the manufacturers and by us. The two sizes are shown in the accompanying illustrations. No. 1 weighs 7½ ounces, and will cut a half inch stick of dry oak. No. 2 weighs 13 ounces and will cut a three-quarter inch stick of seasoned oak. The cut is made smooth and clean by both of these pruners, and they are remarkably strong for their weight—in fact, we know of commercial grape growers who use even the lighter size for pruning their vineyards, owing to the lightness of the tool and the effectiveness of its work.

The Western Fruit-Grower has a little folder, with list of horticultural and agricultural books which we offer as premiums. This booklet will be sent to all who request it, and you will be surprised to find what a good library you can build up, simply by getting a few new subscribers for us.

For the booklet or the pruning shears, address

Western Fruit-Grower
ST. JOSEPH, MO.

Rogers Trees are Safe Trees

Bred from Selected, Bearing Parents, GUARANTEE OF PURITY 5 to 1. Inspected, fumigated, healthy and clean. Money back if not as represented. Our TREE BREEDER and prices free for one year if you mention Western Fruit-Grower.

It's on the SCION and NOT the ROOT That most depends your future fruit.

THE ROGERS NURSERIES On The Hill. DANSVILLE, N. Y

Blue Valley Creamery Co.

ST. JOSEPH, MO.

WANTS TO BUY YOUR CREAM AT **23c a pound for Butter Fat**

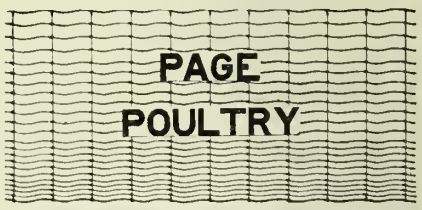
WRITE TO THEM IMMEDIATELY FOR PARTICULARS.

Apple and Peach Trees

PRICES TO INTEREST PLANTERS

Special low price on apple in lots of 500 or more. Good lists of varieties. Write for prices.

PETERS & SKINNER
NORTH TOPEKA, KANSAS.



Don't Bother Us

if it's just a slimsy netting you want. We don't make it. Page Poultry Fence is stronger than a dozen nettings. It makes a splendid Goat Fence. Box "J," PAGE W. W. FENCE CO., Adrian, Mich.

Three Months Free

We will send you the Twentieth Century Farmer, a 24-page illustrated weekly, the best family agricultural paper published either East or West, to your address for three months absolutely without cost, if you live west of the Mississippi River, and will send us a list of not less than forty names and addresses of prosperous English speaking farmers, or stock raisers, living in your county. THE TWENTIETH CENTURY FARMER, 1628 Farnam St., Omaha, Neb.

WANTED—Position as superintendent of commercial fruit farm or nursery. Many years of practical experience in both departments is the basis of my ability. Best of reference exchanged. Address Supt., care of this office.

Kieffer Pear Trees

SPECIAL INDUCEMENTS TO LARGE BUYERS OF KIEFFER PEAR TREES.

We have in stock over 140,000 trees of this variety, all grown on Imported French Stocks. —Not excelled in quality. Write for prices. We are large growers of Apple, Peach, Cherry, Plum, etc. Over One and a Half Million fruit trees, by actual count, now on hand in our nurseries. Everything in prime condition. We guarantee satisfaction. Samples sent free to parties who plant in quantities and who wish to see the quality of our stock before they buy. Varieties true. No disease. WE PAY THE FREIGHT. New list now ready. Send for it.

New Haven Nurseries New Haven, Mo.

GRAFTS

Thirty years' experience in putting up grafts for the trade. We make any style to suit purchaser. Piece or Whole Root on straight or branched Seedlings. Each order is grafted by itself by old and competent workmen.

APPLE SEEDINGS

Graded to the highest standard; any grade desired. Straight or Branched roots.
APPLE, CHERRY, PEACH, PLUM, Shade Trees, Small Fruits, Shrubs and Roses.
In fact, we carry the largest line of general nursery stock in the West. Send list of your wants for prices.
Correspondence invited.

Shenandoah Nurseries

D. S. LAKE, Prop., Shenandoah, Iowa.

SCHULZE TREES FRUIT Where others fail. Result of best whole root process; pedigree tree; finest nursery. Five new money and orchard kings. Write for price list, wholesale and retail.

Brussels, Ill.
Deer Plain, Ill. **Schulze Bros.**

Vaughn's Early Blackberry

The best money-maker. Ripens before Early Harvest and is gone before Kittatinny and Snyder are on the market. Larger than E. H. and far superiar; sells for 25 per cent more. Few seeds and no core; as luscious as the dewberry. Profuse and regular bearer. Canes hardy, have few thorns and free from rust. Plants, 50c each; $3 per doz. For sale only by the originator, W. H. VAUGHN, 305½ College St., Springfield, Mo.

STRAWBERRIES

40 VARIETIES of carefully selected, superior quality plants. Description and prices in my 2d Annual Catalog. Also SECOND CROP SEED POTATOES, the best and earliest and grow largest crops. These two articles are my specialties and my catalog is authority. It also describes other berry plants, etc., of best producing varieties. The catalog is free to all on request. Write for it today. JOHN W. HALL, Marion Station, Somerset Co., Md.

THE LINCOLN PEAR

"The best pear we ever tasted," is what everyone says about the Lincoln. Annual bearer, very hardy. Fruit large, solid, golden yellow, juicy and aromatic. Season, August and September. Very prolific. Handsome catalogue free. Agents wanted. Introduced and sold under copyrighted label exclusively.
W. E. JONES CO., Lincoln, Ill.

Strawberry Plants

Can furnish only a limited number of plants this spring, but what I have are fine. No catalogue; only price-list this spring, but have a few 1901 catalogues which I can send to those wanting plants. Send for price-list.

D. McNallie, Sarcoxie, Missouri

OHIO GROWN STRAWBERRY PLANTS

Leading Varieties. Large Stock of Excelsior, Erie Blackberries. Apple trees. Prices low. Send for price list. CARSON & SON, MIDDLEPORT, OHIO.

extra large, and of a long pointed form, from which the seedlings were grown. We then grafted on the common black walnut and also on to seedling Japan walnuts. It belongs to the cordiforous type (the only type of Japan walnut that is at all desirable). The tree is a very fast grower with very long, dark green leaves. It is stocky in habit and tropical in appearance; where it is grafted on black walnut it makes a more rapid growth than when grafted on Japan seedlings, but the black walnut stock is more difficult to transplant, as it has a long tap root and few if any laterals, while the Japan seedlings have seldom any tap root, but are furnished abundantly with laterals. While those worked on black walnut stock will make larger trees, those that are worked on Japan seedlings stock are much easier to transplant; in fact as easy to transplant as an apple. The sutures of the nut part easily, and every kernel can be taken out whole. The flavor is rich and spicy, very much like our butternuts, but with a milder flavor. The only way to obtain a full knowledge of the flavor is to eat one. The tree is perfectly hardy, and even young trees will stand below zero. We don't know from actual experience, but from our observation, and the way it acts with us here, we are disposed to believe it can be successfully grown in any part of the United States. A great point in its favor, is that it commences to bear in from three to five years and an orchard of these walnuts would come into bearing quite as quickly as an apple orchard. Aside from its value as a nut producing tree it makes an ornamental shade tree of great beauty. It will grow on any soil on which our native walnut will grow, but does the best on a good rich loam, well drained, but a little moist. We believe this is the coming nut tree next to the pecan, and is certainly very much more successfully transplanted.

DUST SPRAYERS.

Among the machines which have been improved during the past year is the Cyclone Dust Sprayer, made by the Dust Sprayer Manufacturing company, Rialto building, Kansas City, Mo. This machine has been improved and made better in every way. The fan will be run with a pulley, instead of by cogs, making it run lighter and with less noise; the size of the hopper has been increased by 50 per cent, giving a machine of greater capacity; new castings have been designed, making the sprayer simpler in construction. A cut of the new model will appear in February issue of the Western Fruit-Grower.

The Dust Sprayer Manufacturing company, to meet the demand for a smaller sprayer, has a new pattern—the "1902." This machine is a portable sprayer on same lines as the Cyclone; it weighs fifteen pounds, with hopper full of lime dust, and is carried by the operator, strapped from his shoulders. It has not so great power as the Cyclone, but is a good machine.

Notes of Interest

The sparrows are early risers, plucking off blossoms in the garden, going for sunflowers in the milk state, etc. Last summer we employed boys with air guns to pick off a few and they seemed to take a hint and left, gradually, at least the sunflowers were saved, but last year they riddled the crop badly.—E. F. Leighty.

The Chicago Tribune says up to the present season the relative importance of Missouri and Kansas as apple-producing sections was scarcely realized, but is now fully appreciated. This is true. The future of the fruit industry in the Middle West was never as bright as at the present time, if growers will only take care of their orchards and fruit plantations.

Huron Burt, Williamsburg, Mo., asked what nurserymen have the genuine Paradise Winter Sweet apple trees for sale, and J. L. Marshall, Lexington, Mo., replies that both Blair & Kaufman, Kansas City, Mo., and W. C. Reed, Vincennes, Ind., have the variety catalogued. This is for the information of Mr. Burt and others who have had trouble in securing this apple.

Have you examined the peach buds? They are in bad shape all over the West. F. W. Dixson says they are all killed in Jackson County, Kan.; Titus Nursery says Elberta and over half the Champion are killed at Nemaha, Neb.; D. M. Woodfill says they are dead in Taylor County, Iowa, and there are other sections to hear from. Most peach trees can be severely pruned this year, for there will not be much fruit, anyway.

M. L. Hosman, Chillicothe, Mo., writes: "Tell J. G. Blevins, Warrington, Kan., he can get rid of the English sparrows by shooting at them. Get a Winchester 22-caliber rifle fitted with Lyman sights, and go after them. He can get 100 shots for 30 cents, have a lot of fun, become a good shot, and will drive this pest away, for the sparrow does not like to be shot at. This applies to countrymen, for of course, so much shooting will not be allowed in the city. The sparrow is a pest we must fight, or he will ruin our crops."

While the gophers are not so bad now as in the early days when the first orchards and hedges were injured by them, yet they are still around doing mischief. We noticed a method used as keeping them off in winter, which was to draw the dirt away from around tree and not bank up as is usual with some, giving a dished out appearance, but not expose roots, however. The large roots of an osage hedge form winter quarters for rats to store corn, so it may be with gophers if the earth is hilled up. Taken off it freezes so much they cannot work well on the tree roots. —E. F. Leighty.

The Western Fruit-Grower has been the source of help and inspiration during the past year. Ours is the largest apple orchard in our township—20 acres. The trees are nearly 35 years old. From articles in the Western Fruit-Grower we were led to try the dust spray last season. It proved effective in checking the canker worm. This insect is our most formidable enemy, and I would be pleased to hear from anyone who has tried Bowker's Bodlime to prevent the female moths from climbing the trees. If Mr. Robnett wants to sell his dust sprayer very cheap, he might write me.—E. C. Fawcett, Salem, Ohio.

J. C. Pence, Creston, Iowa, writes that he believes seedling peaches, grown from seeds planted farther north will bring about a hardier race of peaches. There are many persons who hold to this same belief, and there is abundant ground for it. The new variety is apt to be better adapted to the climate in which it originated. But there is doubt as to whether that seedling will be hardier than other trees budded from it. Most people agree, we believe, that it is proper to originate a new variety by planting seeds; it may be no better, or hardly so good, as the parent, but will likely be somewhat hardier. But once that sort has been originated, it is believed unwise to try to perpetuate it by growing seedlings from it; trees budded from it should be just as hardy. Is this not the experience of those who have worked along this line?

The catalogue of the Fairbury Nurseries, Fairbury, Neb., has just been issued from the press of the Western Fruit-Grower, and is one of the best ever sent out by this firm. Mr. C. M. Hurlburt, the manager, is well known as a reliable nurseryman, and those who need nursery stock should send for this new catalogue.

A. P. Huston, New Richmond, Ohio, writes: "Will you enter my name upon your list and send the paper to my address until further orders for me. The Western Fruit-Grower is the only real horticultural journal I have yet discovered; it seems to be purely and distinctly devoted to the newer horticulture of today."

How do you like this issue of the Western Fruit-Grower? Is it not about the best thing of the kind you have ever seen? If you want to show your appreciation of it and help to keep it up to the present high standard, send us a new subscriber or two. Those who help increase our circulation are the real friends of the paper. Their interest is practical. Fifty thousand circulation for the Western Fruit-Grower will mean a much better paper every month in the year. Does not the fruit industry deserve this sort of paper, and will you do your part to help make such a publication possible? Subscribers are what are needed. Send in your list.

Wm. Quick, Moshannon, Pa., writes: "I have a wash for my tree trunks which I believe is a good one. I mix one peck of slaked lime and one bushel of hardwood ashes in enough water to make the mixture thin enough to apply with a broom or brush. This is applied from the ground to as high as I can reach on trunk and limbs of trees. This wash cleaned the trunks, making the bark smooth and healthy and bright in color. I am convinced that wood ashes is one of the best fruit producers that can be applied, and I also think lime is a stimulant to the tree. As long as I am interested in growing fruits I will be a continual subscriber to the Western Fruit-Grower."

DUST SPRAYER.

Elsewhere in this issue will be found a page advertisement for the Hillis Dust Sprayer Co., St. Joseph, Mo., which succeeds J. H. Hillis & Co., late of McFall, Mo. This firm's business has grown to such an extent it was compelled to move to St. Joseph to secure facilities for handling its large business. Knowing of the increasing interest in the dust process of spraying the company makes the following liberal offer, which will allow all who desire to try it for themselves at slight expense:

"As we feel assured of the value of our machines and process of spraying, and in order to place it in the hands of many, where it will prove its merits and be worth dollars to the user, we make this proposition:

"To any person who will send us $5 for one machine, literature and a sample sack of our dust, we grant an agency. Then you will get all other machines you may order at wholesale price, and the profit on the first few machines will reimburse you for the money you paid for your machine. We do not sell at wholesale to anyone except those who have agents' outfits. Remember one sack of our dust, chemically pure, thoroughly pulverized to an impalpable powder, is sent with each agent's outfit, and remember, also, that you do not have to leave your work to canvass in order to be an agent—if you sell only a few you have secured yours for nothing. For any additional particulars address

"HILLIS DUST SPRAYER CO.,
"St. Joseph, Mo."

Attention is called to the ad of Snow, Schmiedeskamp & Co., of Quincy, Ill., which appears elsewhere in this issue. It deserves the consideration of our readers, for the firm is in a position to save those who deal with them considerable sums. They are an old established house engaged in wholesaling merchandise direct to the consumer, at much lower prices than the same goods can be purchased in the usual way. Our readers are so familiar with this method of doing business, through our many favorable comments upon the plan, that it is not necessary to outline any argument in favor of mail order buying. Thousands today make all their purchases that way, and have the advantage of large stocks for selection, as well as lower prices. We do, however, want to emphasize the fact that our advertisers above referred to, are so located as to make it worth while to write for their large catalogue, which contains illustrations, descriptions and bedrock prices. You will miss a money saving opportunity, if you fail to get their book. Better write today. Address, Snow, Schmiedeskamp & Co., Quincy, Ill., and tell them you saw their ad in this paper.

"VICTORY" AS A TRADE MARK.

The new catalogue of the George Ertel Company, Quincy, Ill., has on its title page a good illustration of the figure "Victory," and this will in the future be used as a trademark by that firm. By the way, this new catalogue is very complete. The Victor incubators are well known as being among the very best. They are described in this new catalogue, which also contains much other valuable information. See the ad. of Geo. Ertel Co. in this issue, and when you write, please mention the Wesetrn Fruit-Grower.

MORE NEW CATALOGUES.

There has been much interest in the new department added in the Western Fruit-Grower office—that of catalogue printing for nurserymen. During the past month we have turned out catalogues for Fairbury Nurseries, Fairbury, Neb., and Yarbrough Bros., Stephens, Ark. These catalogues are very neat, we think, and are very complete. Those who desire nursery stock should study these catalogues, for in each a complete assortment of stock islisted.

GREAT BENEFIT.

Heller Chemical Co., Chicago, Ill.—Gentlemen: Please send me another box of Lister's nerve and brain Pills. I have received a great deal of benefit from same. Please send as soon as possible. Yours respectfully, Mrs. S. Anderson, Delhi, Ill.

MORE THAN PLEASED.

The Western Fruit-Grower must be very widely read, as we are continually receiving replies to our ad. We are more than pleased with results.—M. Brunswick & Co., Rochester, N. Y.

UNIVERSITY APPLE

The best and hardiest tree for the Northwest. Tree perfectly hardy, does not blight, keeps all winter. Fruit large and best in quality.

COMPASS CHERRY

The largest and best cherry for the Northwest. Absolutely hardy, bears fruit next year after planting. Send for free Catalogue.

MINNETONKA NURSERY CO.
Excelsior, Minn.

A GREAT COMBINATION OFFER!

The Western Fruit-Grower is prepared to offer its readers good reading matter at a very low rate, as follows:

	Reg. Price
THE AMERICAN BOY (Undoubtedly the best boys' paper published)	$1.00
VICK'S FAMILY MAGAZINE (Leading Floral Magazine)	.50
WOMAN'S WORK, of Athens, Ga.	.50
WESTERN FRUIT-GROWER	.50
	$2.50

All One Year for $1.10

Write your name plainly, and address all orders to

Western Fruit-Grower
St. Joseph, Mo.

Kansas City Nurseries

Located in the center of commerce, railroad facilities to nearly every point in Missouri, Kansas and other states without change or transfers. Good first class Fruit and Ornamental Trees, Shrubs, Roses, Vines, etc. A very large assortment for the City and Country trade. Write for our eighty-page descriptive catalogue. Address
BLAIR & KAUFMAN.
233-34 Rialto Building, Kansas City, Mo.
Long Distance Telephone No. 366 Red.

Want a Farm Paper?

The Practical Farmer of Philadelphia is one of the best general farm papers published. Its regular rate is $1 per year, but we have arranged to offer it in connection with the Western Fruit-Grower, both for $1.
Two Papers for $1.
Send subscription to
Western Fruit-Grower, St. Joseph, Mo.

30 BUDDED PEACH TREES, $1.00, 1 to 2 ft. New sorts, Adm. Dewey, Emma, Triumph, Everbearing.
50 CONCORD GRAPES, $1.00, Good vines; no better for vineyard planting.
100 ASPARAGUS PLANTS, 25c. Mammoth White, Conover's Colossal; heavy 1 yr. plants. General Nursery catalogue free. Address Box 634. GAGE COUNTY NURSERIES, BEATRICE, NEB.

Free INFORMATION ABOUT **Fruits**
By Prof. Van Deman, fruit editor Vick's Magazine, Rochester, N.Y. Sample & blank FREE

State & County Agents Wanted

Newly patented article. To show it is to sell it. Good commission. A necessity in every orchard in the United States. Saves its cost every year ten-fold in any bearing orchard. Endorsed by the highest authorities on fruit growing. Address HOYT'S PROPLESS TREE PROP, WATSONVILLE, CALIFORNIA.

Farmers' Telephones and Telephone Switchboards and Appliances Write for catalogue and prices.
Standard Telephone & Electric Co.
MADISON, WIS.

Kansas Fruit-Growers Meet

Report of Proceedings of Their Late Annual Convention

THE thirty-fifth annual meeting of the Kansas State Horticultural Society was held at the rooms of the society in the capitol building at Topeka, December 26 to 28. The attendance was good, the fruit display likewise good, and the meeting was fully up to the standard of previous years. Kansas fruit-growers did well last season, and there is an increasing interest in horticulture all over the state, from the Missouri line west to the Colorado border.

The first afternon session was devoted to a meeting of the trustees and reports from same. The reports showed a generally satisfactory condition in horticultural matters all over the state. At the evening session President Wellhouse talked of "What to Do with Cull Apples." Judge Wellhouse has experimented a great deal with fruit evaporators, etc., and now believes the culls should be sold, if possible, to someone else, and for the orchardist not to try to work them up. Mrs. G. W. Maffet of Lawrence, and Prof. Harshbarger, also had excellent papers, the former on "Flower Culture," and the latter on "Window and House Plants." Prof. S. J. Hunter gave an interesting talk on "Cross Fertilization of Flowers," with stereopticon views.

Friday morning Secretary Barnes submitted his annual report. He said the year 1901 was a horticultural success, so far as Kansas fruit-growers are concerned. Strawberries were a mixed crop. In the southern part of the state the crop was mostly ripened before the drouth set in. Blackberries and raspberries were failures, the secretary said, and in this connction he recommended the planting of dewberries, which seem to stand the drouth much better than either blackberries or raspberries, and in many places are very profitable. Early peaches were light crop, but there was a heavy crop of the later sorts, and prices were generally good. The apple crop was generally good throughout the state, but in some sections the growers were not prepared to handle the crop. There was a scarcity of barrels and storage houses were filled to their capacity.

"Our Kansas growers are very much encouraged," said the secretary, "and the acreage which will be planted next spring will be greater than was ever planted before in a single season." The secretary told of the exhibit which was made at Buffalo late in the season, and for which the society was awarded one of the Wilder medals.

The question of "Orchard Treatment" was taken up, and R. De Garmo of Oswego submitted a paper. Mr. De Garmo would prefer rolling land, of good soil; would prepare soil well before planting and set trees 30x30 feet. He recommended strongly against planting peach trees in the orchard, and said he would not do it. In list of varieties he said Mammoth Black Twig does well with him, and he will plant largely of this sort.

W. B. Eames said he would turn the soil to the tree when first planted, thus causing roots to appear further up on the trunk. He believes the Acme harrow to be the best orchard cultivator, and he would use it until the trees come into bearing; after this date he believes the trees should be left alone, allowing annual weeds to grow until they are high enough to mow, and then cut and allow to lie on the ground, affording a mulch. Cut the weeds as soon as they are high enough and do not allow them to mature. Mr. Eames said he tried the moth catchers last season, and they are a failure. He will spray his trees the coming season. He made a strong plea for better roots for our fruit trees, and would by all means avoid injuring them by cultivator.

Dr. Bohrer said he could grow corn in his orchard, but he would not plant alfalfa, as some have suggested. He believes in subsoiling the orchard before planting.

Among the growers present were Messrs. Yaggy and Underwood of Hutchinson, and they were asked to give their plan of orchard management. Mr. Yaggy said he believes in very little pruning in their section, but he wants the brush removed from beneath the trees. As to the Acme harrow, he said it was a fine cultivator if it is started before the weeds start; if weeds are once allowed to grow the Acme will not do the work, and a disc or other cultivator must be used to destroy the weeds. Mr. Kaggy said, however, that their soil is sandy and the disc harrow is a horse-killer.

A delegate from Phillips county said he could keep his trees alive in summer only by wrapping with paper to protect the tree trunks. He would prefer white cloth to the paper, except that the cloth harbors insects. This treatment prevents sunscald.

Another delegate said he would trim his orchard in May and June, when the wounds will quickly heal, but he would not do much of it at any time. He would simply cut out cross limbs and remove the buds which start where he does not want limbs; a knife, he said, is a big enough implement to use in pruning an orchard.

L. A. Goodman, secretary of the Missouri society, said that in planting an apple orchard we must understand the adaptability of the climate and soil; not understanding this, failure is apt to follow. "We hear a great deal about the soil in which fruit trees should be planted," said Mr. Goodman, "but I believe the subsoil to be much more important than the top soil; unless one knows the subsoil of the orchard, he would better not plant until he investigates. I would prefer a loose clay subsoil, but one which is not too gravelly.

"Another matter which deserves attention in connection with orcharding is the selection of trees from which to propagate. I believe the individuality of the tree is very important; some trees of a given variety in every orchard are better than others of the same variety, and care should be taken to propagate from the best individual trees, from those which have the best crops of the most perfect, most highly colored fruit. If our orchards in Southern Missouri were composed solely of trees which had been propagated from selected individual trees as parents, with a record of say 15 years, the orchards would be worth $50,000 more than they are today."

Along this same line a delegate told of having a tree which habitually bore extra choice fruit; he propagated other trees from this one, and the habit of bearing was perpetuated in the young trees, showing that the individuality of a tree is transmitted to those grown from buds or scions taken from it.

Returning to the subject of orchard cultivation. Edwin Snyder said it will not do to allow weeds to grow in an orchard, as had been recommended by Mr. Eames. The weeds will pump the water from the soil and will rob the trees. Mr. Snyder said the orchard must be cultivated, and he finds the disc harrow to be a splendid implement. It will not cut the roots to hurt. "You give your orchard good cultivation," said Mr. Snyder, "and don't worry about the roots; they will take care of themselves."

Mr. Yaggy gave some interesting facts concerning their orchard in the Arkansas valley, near Hutchinson. The elder Yaggy went to Hutchinson to plant catalpa trees and put out 500 acres. When he found that apple trees did so well there, he planted an orchard, and now there are 880 acres of apples, the first trees planted in 1892. Part of the orchard is on soil underlaid with hardpan, and it is in bad shape. There are also 40 acres of Keiffer pears, 9 years old, very fine trees, which bloom full, and never have borne. This is believed to be due to lack of fertilization of blossoms. In apple orchards York Imperial, Ben Davis, Winesap, Jonathan and Mammoth Black Twig are planted. Winesap and Mammoth Black Twig do especially well. The orchards are in the valley of the Arkansas river, and at a depth of six feet water will be found.

Mr. Brooke suggested that owing to this subirrigation the pear trees have grown too rapidly, and he suggested that the soil be so plowed as to root-prune the trees. Another suggested, however, that the root-pruning is intended to cause the tree to form fruit buds, and Mr. Yaggy says it blossoms now. He believed the cause of failure to be due to lack of cross-fertilization.

The question of sunscald of apple trees was brought up, and a delegate said he believed the trouble was all done in winter; that the freezing and thawing killed the bark, and that the following spring the damage was in evidence, but that the injury had been really done the winter before. He recommended cornstalks as a protection for tree trunks in the winter.

At the session a resolution was introduced reciting that it was reported that there would likely be a change in the cabinet of President Roosevelt, and that Secretary Wilson would retire; if such is the case the Kansas Horticultural Society most heartily indorses Hon. F. D. Coburn, secretary of the Kansas State Board of Agriculture, for the position. Mr. Coburn is an exceptionally good man, and has lots of friends in the horticultural society.

A request was made that Mr. Haseltine, the moth catcher man, be given five minutes to address the society in behalf of his trap, but a motion was made and carried "to lay the entire matter on the table."

Under varieties of apples, Judge Wellhouse was selected to speak for the Jonathan. The judge said his books show that the Jonathan has been their most profitable variety, having made them 20 per cent more money than any other sort. "The Jonathan is not only a money-maker," said the judge, "but it has often enabled us to sell our stock of other varieties. The Jonathan is always in demand, and frequently the buyer will take other less desirable varieties in order to get the Jonathans in the same lot. This year we put 400 barrels of Jonathans on the market as fancy, and sold them early at $4 per barrel. The Jonathan is our best yielder, and sells for a high price. It drops badly, it is true, and must be picked just at the right time. The tree also blights, but I don't believe we have ever lost a Jonathan tree by blight."

W. H. Cultis was down to speak for Ben Davis, and as he was not present Mr. Brooke offered a few words in its behalf. He said nurserymen have been fearing for years that planting of Ben Davis would be overdone, but notwithstanding the large numbers already planted there is today no variety which approaches it in popularity. It is in demand everywhere, and Eastern nurserymen are buying them by the carload whereever they can find any for sale.

J. W. Curry spoke for the Gano, saying it was better than Ben Davis in tree and in fruit, bears better and this year has sold better. While this variety was being discussed, attention was called to the proper pronunciation of the name. As is known, the variety

Mount Arbor Nurseries Shenandoah, Iowa.

E. S. Welch, Prop'r.

Offers for spring of 1902 a large stock of APPLE, two years old; KEIFFER PEAR, CHERRY, all sizes; PEACH, in assortment; PLUM, APRICOT, MULBERRY, Etc.

Apple and Crab Grafts Made to Order

APPLE SEEDLINGS and All Kinds of FRUIT TREE STOCKS. One of the largest and most complete lines of General Nursery Stock on the Market.

Crimson Winter Rhubarb

Not six days, but Six Months Earlier than any other variety

Three times as productive. Best possible quality. Absolutely perpetual if kept from severe freezing. The best new vegetable offered during the past twenty years. Also new Fruits and Flowers, and the Grand New Shasta Daisy. Send for price list.

Burbank's Experimental Farms

Luther Burbank
Santa Rosa, California

Save Money ON Fruit Plants

The STRAWBERRY OUR SPECIALTY. Choice Stock of New Strawberry, ROUGH RIDER, and 50 other varieties, low. Also Raspberry, Blackberry plants, Currants, Gooseberries, Grapes, etc. Our 1902 (Thirteenth Annual Cata.) tells all about it. It is Free. Write now. Address

Baldwins Fruit Plant Farms
BRIDGMAN, MICH.

Got a Dollar?

25 Grafted Apple Trees for $1
25 Budded Peach Trees for $1
40 Concord Grape Vines for $1
We pay freight on $10 orders.

Invest it in our choice FRUIT TREES, SHRUBS OR VINES.— Ours will grow. They are well rooted, healthy and true to name. Send a trial order today. Due bill for 25c and Catalogue in German or English free.

Trees

FAIRBURY NURSERIES, Box I, Fairbury, Neb.

CORN FOR SEED

Clarence L. Gerrard, Irrigation Grown Seed Will Grow the Best Crops. Why? Send Stamp for Samples.
Columbus, Nebr.

SEEDS At Wholesale Prices. We raise Vegetable Seeds, Seed Potatoes, Farm Seeds, etc., on our own Farms, and sell them direct to the planter at Wholesale Prices. Catalogue free. Please write for it to-day. Don't delay. JOS. HARRIS CO., Moreton Farm, Coldwater, N. Y.

For destroying SAN JOSE SCALE and other scale insects—OYSTER SHELL BARK LOUSE, SCURFY BARK LOUSE, etc.,

Spray with

Leggett's Caustic Potash Whale Oil Soap Anchor Brand

Indorsed by Agricultural Experiment Station. May be procured from the following firms:
Missouri Valley Seed Co., St. Joseph, Mo.
J. M. McCullough's Sons, 316 Walnut St., Cincinnati, Ohio.
W. G. Hover & Co., Denver, Colo.
J. Chas. McCullough, Second and Walnut Sts., Cincinnati, Ohio.
Barteldes & Co., Denver, Colo.
Jerman, Pfluger, Kuehmsted Co., Milwaukee, Wisconsin.
W. W. Barnard & Co., 161 Kinzie St., Chicago, Ill.
Huntington & Page, 130 East Market St., Indianapolis, Ind.
E. E. Bruce & Co., Omaha, Neb.
Barker & Wheeler, Peoria, Ill.
Des Moines Drug Co., 212 Second St., Des Moines, Iowa.
George Freisheimer, Missoula, Mont.
SPRAY CALENDAR and Circular Free. All information how to use.

Leggett & Bro., 301 Pearl, New York

Nurserymen's Fruit and Ornamental Plates

An experience of over 30 years and our unequaled facilities have made our Plates the leaders.

They are used by the leading Nurserymen and Agents in the United States and Canada. A trial order will convince you of their superiority.

Send for catalogue and prices.

M. Brunswick & Co.
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was named for W. G. Gano, Parkville, Mo., treasurer of the Missouri State Horticultural Society. The name is properly pronounced Ga-no, both the "a" and "o" with long sound, and with the accent on the second syllable. Mr. Gano was introduced to the meeting, and said while the variety has been a very good one, he fears, during the last year or so, it has been more subject to attack by codling moth than is Ben Davis .

John Brazelton, Jr., spoke for the Winesap. This variety is a favorite with this gentleman, who exhibited some beautiful specimens at the meeting. He said an experience of ten years had failed to show many serious faults of Winesap. It always sells at top prices on every market after Jonathan is gone. Quality of fruit is good, and tree is healthier than Ben Davis, and bears only second to Missouri Pippin. One of its faults is that the fruit runs down in size on old trees, but he believes this can be overcome by thorough culture. Scant foliage is another fault in a hot summer, but notwithstanding the intense heat of last summer there was very little damage from apples sunburning on the trees.

Missouri Pippin was referred to, and one delegate reported it as his most profitable variety. The tree is not long lived and should be double-worked. If it is top-worked on Janet stock he believes it will be all right. On its own roots Missouri Pippin is subject to root rot.

"Stone Fruits" was the title of a paper by William Cutter, who said he would not plant apricots or nectarines for profit, but might try them for home use. Native plums are best suited to Kansas; would plant few of the Europeans, and the Japanese are too tender for most of the state. Cherries are profitable, and not enough are planted; Early Richmond, Montmorency and English Morello were named as the best sorts. Mr. Cutter believes peaches should be planted rather high, although not on as high locations as are usually recommended. Greensboro is the nearest drouth-proof of any peach he has seen. The chief enemy of the peach is lack of cultivation.

A. Chandler read a paper on "Commercial Peaches," in which he said he would plant peaches in Kansas and Missouri on high locations, preferring a north or east slope, and well-drained soil which will not wash. He said too many varieties of peaches are usually planted; he would not recommend any of the very early sorts, as they lack quality and always come on the market in competition with better peaches shipped from the south. He would plant in the spring, 180 trees to the acre; give clean cultivation up to about August 10 with extension disc harrow. Mr. Chandler believes the commercial grower should make preparations to can the fruit which is not salable. Good fruit is always in demand, and with the other grades worked up at home, the market will be profitable.

G. P. Whiteker spoke for the Elberta peach, saying it was the most popular commercial peach. It must have a place in every commercial orchard. Edwin Snyder, who has a large peach orchard, spoke for the Champion, saying it originated at Nokomis, Ill., and is peculiar in its hardiness. It is a large white peach of splendid quality, a good bearer and is desirable. Mr. Snyder packs his fruit in baskets direct from the trees, ships at once, and gets good prices.

Major Holsinger championed the Salway, saying it is supposed to have come to this country from England. It ripens just as Smock goes out and is one of the most valuable sorts for market. It is a good cropper and is second in value only to the Elberta. It is hard to beat as an eating peach when fully ripe and is best for canning, as it comes out of the can in splendid shape.

F. G. Barker had a paper on his experience with seedlings. He recommended the more extensive planting of pits, and said he believed commercial orchards could even be planted in this way. Mr. Barker has some good seedlings, and is an enthusiast.

Mr. Maffet objected to the dissemination of any literature which should recommend seedling peaches for commercial purposes. It is a mistake. There are good seedlings, of course, he said, but they are few, and budded ones are in nearly every case better. And even if a seedling is a good one it will not do to try to propagate from it by planting its seeds.

Edwin Snyder, too, protested against any recommendation to plant seeds to get a commercial peach orchard. Mr. Snydr added that he would plant more varieties of peaches than of apples. The past season, the period for marketing his peaches lasted just three months and one day.

George Holsinger said the Family Favorite should not be omitted from a list of good peaches. It is surely a fine peach. Clarence Chandler made a plea for Triumph; it is early and prolific.

Mr. Goodman gave a list of peaches which have proved profitable with him, and said Mountain Rose is the earliest peach he would plant; those ripening before that season were not desired. George Holsinger agreed with this last statement.

Mr. Brooke said location makes a difference in the bearing qualities of peaches. He had found locations where Champion is not prolific, and while the Emma is not liked down South it may be that it will prove a fine sort for Kansas.

W. D. Cellar made a brief report on "Handling Fruits,' in which he said it had paid this year to store No. 2 apples, but ordinarily it will not do so. The box is growing in favor as a package for apples, and he believes it the coming package for fancy fruit. On the Kansas City market the trade has always preferred grapes marketed in split baskets, but an effort is being made to introduce the regulation eight-opund grape basket.

In a paper on "New Fruits" C. A. Chandler made a plea for getting better varieties of fruits of all kinds, and said in plant breeding there is abundant opportunity for progress. He believes the legislature can well afford to appropriate money to establish experimental farms for the purpose of testing and originating new varieties of fruits, with a desire to get something superior to what we now have.

Edwin Taylor did not believe this work belongs to the average grower; it is without the province of the socity, and should be left to the specialists. Let members of the society keep down on the "bread-and-butter" level, leaving the speculative and experimental work to those whose living does not depend on the outcome of the work.

The question box was opened, and the following questions were produced, with answers as given:

Was there any bitter rot in Kansas orchards this year? Yes, a little, on York Imperial and Willow Twig.

Has the Stringfellow method of root-pruning been tried in Kansas? Prof. Albert Dickens said it had been tried at the experiment station. Three methods of planting were tried; part were stub-pruned, as recommended by Mr. Stringfellow, part were pruned one-half, and the remainder were planted with their roots untouched. The Stringfellow trees nearly all died, and the best trees were those which had the best roots at planting time.

F. W. Dixon had tried similar methods in planting peach trees. One row had roots pruned according to Stringfellow method, next row had the roots and tops cut back as is ordinarily done; and the next had roots and tops unpruned. Of the untrimmed trees 7 died, of those partially trimmed 11 died, and of Stringfellow trees only 3.

Major Holsinger said he had practiced the method now known as Stringfellow method for twenty years, with best of results.

S. J. Baldwin said about four years ago he began to cut the roots to 4 inches, and the trees did well; then he cut them to 2 inches, and then to 1, and all did well. Mr. Baldwin gave it as his opinion that where trees are shipped and the roots mutilated they had better be cut off.

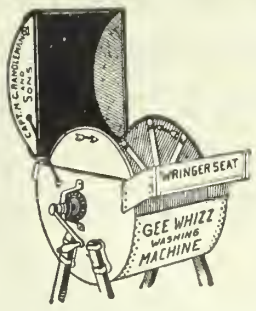
J. J. Alexander had tried the Stringfellow method in Northwestern Kansas, and all the trees died.

Who has tried the dust spray, and with what results? Mr. Goodman told of his experience, as related at the Missouri meeting. He believes dust spraying is helpful and promises well; one can dust trees three times for less money and labor than can spray once with the liquid.

On the subject of spraying one delegate said he had sprayed with copper sulphate solution for apple scab and had burned Ben Davis apples, while Missouri Pippin were unhurt. All trees were free from scab this year. Spraying has been a tabooed subject before the Kansas society, but this gentleman said the members had as well prepare to discuss apple scab, for it is a bad pest and once it gains a foothold must be fought heroically.

Walter Wellhouse told of difficulty of getting spraying mixture to stick, and said he had added a pint of molasses to 140 gallons of mixture, and the mixture stuck and seemed to be more effective.

Is nursery stock injured by being dug in the fall and stored in frost-proof cellars? Mr. Brooke said he did not store his trees in the fall, but if he had



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a good cellar he would do so; if trees are not dug until they are fully ripened they will be all right when stored. After their experience and losses of three years ago nurserymen are storing more and more trees every year, he said.

Mr. Cutter said more trees are lost by being not stored than there are by being stored. Trees must not be stored when wet. He especially believes peach trees should be dug in the fall and stored.

What shall I do to make my Keiffer pear trees bear? Have 150 in one block, 11 years old, but with no fruit. This question was not answered.

What temperature will kill peaches? Mr. Cutter said peaches have been killed by 7 degrees below zero, and yet when the trees are dry they will withstand a temperature of 14 degrees below. It was stated that peaches in Northern and Central Kansas are pretty generally killed for next season's crop.

Is yellows of peach trees a matter of heredity? Someone said yes, but Major Holsinger said no. He has never seen yellows on a tree in the nursery row or on nursery trees. He does not believe the disease is in Kansas, although thousands of trees have been imported from sections where yellows exists. He does not believe it is hereditary, but is largely a matter of soil.

Mr. Goodman said he believed the disease is hereditary, for in Michigan seeds planted from yellows-infected trees produced seedlings which died in three years.

Prof. Popenoe: "Rosette and peach yellows are diseases of peach which are similar in their natures somewhat, and I have planted seeds from rosetted trees and the seedlings died in about three years. I believe the yellows will follow the same way."

Friday evening the program was one of the best of the meeting. Mrs. Cora Wellhouse Bullard read a delightful paper on "Horticulture and Its Relation to Civilization," which was in keeping with the reputation she has achieved for preparing good papers. J. L. Williams talked on "The Home Garden," Colonel W. S. Metcalf on "Horticultural Products for the Army and Navy," and Edwin Taylor closed the evening program with a very humorous paper on "Birds: High Flyers and Low Flyers." Neither of these papers could be adequately reported, and they must be heard or read in full to be appreciated—especially the last one.

Saturday morning Charles Harrington had a paper on "Horticultural Implements," in which he recommended the use of a plow for first cultivation in spring, followed by shallow cultivation with disc or cutaway harrow or ordinary cultivator or harrow. The Hallock weeder is an excellent implement to use among small fruits.

In talking on this same subject Francis Goble told of his method of handling an orchard. He believed corn, Kaffir corn, sorghum and potatoes are good crops to cultivate in a young orchard, and cow peas, planted late, are also excellent.

Prof. W. E. Ringle read a carefully prepared paper on "Variation in Fruits and Plants." He told of the variations which occur in seedlings and also in buds; he believes careful selection should be practiced to fix the desired characteristics which are found in certain trees or certain plants. Prof. Ringle said plants propagated from buds and runners are more apt to deteriorate than plants propagated from roots, and gave it as his opinion that the Kansas raspberry has gone back in the last ten years, while the Turner, being propagated from suckers, has not changed. The speaker believes added vigor can be secured from crossing.

H. E. Goodell talked on "Irrigation," having tried it on his orchard and strawberry plantation last season. He uses a windmill, which works two pumps in a strong wind and one pump in a light one; water is lifted 24 feet at rate of 90 gallons per minute, and emptied into reservoir 70x170 feet. Reservoir is lined with boards and fish are kept in it. Mr. Goodell has formerly used an open ditch to apply the water to strawberry plants, but this season kept his plants well mulched, to prevent soil from getting on berries, and the mulching interferes with the proper distribution of water. Therefore the past season he used a tank wagon and applied the water directly to the row. He also hauled water to his apple trees and gave each tree about half a barrel of water, and then hoed the soil thoroughly. Trees were kept in good shape, and the cost of applying the water was only about 10 cents for each barrel of fruit the trees were enabled to mature.

One of the best papers of the meeting was one by O. E. Whitney on "Commercial Gardening." Mr. Whitney told of the development of gardening and the importance of the industry at this time. The home market is the best; if you are compelled to ship, pack your produce carefully. If you are to sell on a home market, get close to town, for the time lost in getting to and from market, where the farm is very far removed, will mean a great loss in profit. The long haul not only takes time, but is hard on the produce. For soil, Mr. Whitney prefers a good sandy loam, sloping to the south preferably; never use sticky soil.

"Fertilize well," said Mr. Whitney, "with commercial fertilizers, legumes and barnyard manure. Commercial fertilizers are not as much used by gardeners as they should be. For many purposes they are unexcelled. For large tracts of land, the legumes, such as cow peas, soy beans, etc., are excellent, and where you are close to the city barnyard manure can be used to advantage, especially to add humus to the soil. Don't fear to get your soil too rich. And you will also need lots of water, especially if hotbeds are to be used to any extent. I believe in irrigation, and would advise anyone who contemplates changing his location to get a place which can be irrigate to advantage. We will have to do more irrigation than we have been doing, and the work will pay well. I look for the time when all the visible water in the Kansas river will be pumped out and used for irrigation purposes.

"Plow your garden in the fall, and then harrowing in spring will be sufficient preparation. Use good seed and lots of them. Don't be stingy when planting, but use enough good seed to get a stand. Buy all your seeds from reliable seedmen, and don't use those which are sold on commission in grocery stores. Don't fail to cultivate your garden thoroughly all through the season. Try to raise only the very best of produce, pack it honestly and neatly and then try to sell at the top of the market. It is the man in the lead who makes money in gardening, as in other vocations."

The report of the committee on fruits was submitted, the committee consisting of Major Frank Holsinger, B. F. Pancoast and William Cutter. The report especially commended Payne's Late Keeper apple, and complimented the exhibit of apples made from the western part of the state.

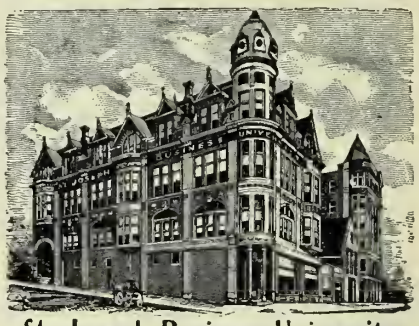
George Holsinger discussed "Small Fruits." He said lack of rain cut short the crop last spring. Raspberries were 10 per cent of crop, and Kansas still leads among the varieties. Gregg is still a good one, and Cumberland promises well, but he is not prepared to say it will equal Kansas. Cardinal has certainly made an excellent growth, and is a good variety for the home garden. Among blackberries Early Harvest was the money maker. It matured its crop fairly well before the drouth. Strawberries which were in bloom when late frost came last spring were killed, but those which had dropped their petals were unhurt. About half the strawberry plantation was irrigated late in the season, but the pump was not started until the drouth was well on. The increased yield caused by the irrigation paid for the entire expense of the plant and labor of operating it, and still made a profit. Mr. Holsinger believes strawberries need lots of water at time of ripening. Strawberries should be well cultivated. If in doubt about this, try a plan of giving part of the patch twice the labor expended on the other half, and see if it does not pay. Strawberries for next spring promise half a crop, with indications of high prices for the fruit.

On the same subject B. F. Smith said gooseberries and Early Harvest blackberries made him the most money the past season. Other fruits were in bad shape. Mr. Smith says he cannot recommend currant culture commercially in any part of Kansas, although this fruit should be planted in the home garden. Mr. Smith was very pronounced in his opposition to subsoiling for strawberries.

"I had three strawberry patches on subsoiled land," said he, "and on all three of them did not have enough fruit to pay for the mulching, while on land not subsoiled I had fairly good fruit. No man can do any more subsoiling for me, not if he pays me $50 an acre for the privilege."

Mr. Smith believes in smaller acreage, with fewer varieties and better culture.

F. W. Dixon was the third member of this committee to report. He said Excelsior was his most profitable berry last season, for it matured its crop before the drouth set in. Next came Clyde, followed by Crescent. Mr. Dix-



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The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

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Ohio Farmer, Cleveland, O.....	.60	1.00
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Give name and address plainly in each case.
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Hart Pioneer Nurseries

FORT SCOTT, KAN.
Wholesale Growers of Nursery Stock.

on believes soil has everything to do with strawberry culture, especially in a dry year. The Mele, originated with A. H. Griesa, is promising, as is the Monitor, which is much like the old Captain Jack. The latter variety, however, was severely caught by the dry weather last season. Mr. Dixon cultivated his raspberries thoroughly and often, and the dry weather did not seriously injure them. The Kansas paid best; the Cardinal is surely a fine berry if one has a market which will take a berry of that color. He had a good crop of Kittatinny blackberries and received good prices.

Prof. Popenoe, state entomologist, made report, and called special attention to the codling moth. It is a pest which must be fought by all Kansas orchardists. Some growers would as soon think of doing without a cultivator as without a spray pump. For combating the codling moth Prof. Popenoe recommended, first, spraying about same as is given in Prof. Stedman's article in this paper. Another help in fighting is to take bands of building paper and after scraping the rough bark off, place them around the tree, fastening with a tack. This band affords a hiding place for the larvae to enter to change to pupa state, and as a number of them will be together, they are easily destroyed. A third aid is to see that screens are over the windows of all cellars and buildings where apples are stored—not to keep other insects out, but to keep the codling moth in when it emerges in the adult form. All these methods can profitably be employed. The speaker said it was hardly likely that the thorough cultivator appreciates the work of destroying insects which he does when he plows the orchard; late plowing in fall is especially helpful, as it exposes the winter homes of many insects.

"We have experimented with a number of the proprietary poisons in our spraying," said Prof. Popenoe. "Some of them gave good results, while others did not. We tried arsenate of lead, and it was an excellent preparation. It sticks exceedingly well, from six to fourteen days after being applied, and is not even washed off by a rain. Arsenate of lead gave the best of results. Its color is good, so you can see what is being applied, and it will not burn the foliage. Arsenate of lead costs about the same per pound as paris green, but more of it must be applied, so it may be a little more expensive than the paris green. Green arsenoid gave about the same results as paris green."

Prof. Popence said that most insects which attack the grape seem to be held in check by spraying with Bordeaux, except the thrips, which are not affected. Of course the Bordeaux is applied as a fungicide, but it seems to make it unpleasant for insects, and very few are found on our grapes, with the exception noted.

From the committee on Vineyards G. F. Espenlaub reported a good season for grape growers. Concord bunches had many green berries, Moore's Early ripened up all right, but Worden did not ripen evenly. Mr. Espenlaub prefers white oak land, for grapes, saying they do not rot as badly as they do in rich prairie soils. He sprays with Bordeaux mixture for the rot. For black he would plant Moore's Early and Concord; for white, Niagara and Moore's Diamond; for red, Goethe and Woodruff. Campbell's Early is very promising, as is the McPike.

Mr. A. L. Entsminger, from same committee, told of his experience with the newer grapes. He believes in trying them, and says he enjoys the work. Last season he had over 500 seedlings. He paid special tribute to the Green Mountain, a very early white grape. Herbert is another one which he thinks should be largely grown. It is a good variety, a long keeper, has been kept until spring, and is desirable in every way. He praised the Hicks and said it is likely to prove a profitable sort; it is a strong grower and matures its fruit well.

Before final adjournment Mr. Maffet favored a movement to secure more money for printing the society report, so that the entire proceedings can be printed. At the present time the report is limited to 100 pages, and each year the secretary is compelled to cut out out much interesting matter.

After informal talks by others, the meeting adjourned. The fruit exhibited at the meeting will be shown at the midwinter fair to be held in Topeka, of which Secretary Barnes is chairman of the horticultural department.

A reader of the Western Fruit-Grower writes to ask if Col. C. C. Bell has ever made official report of the premiums awarded Missouri fruit at Buffalo. We have never seen a report published. We understand announcement has been made in other states, but so far as we know, no report has been made as to the list of Missouri awards.

Peach Buds in Bad Shape

PEACH BUDS BADLY INJURED.

Reports from Iowa, Nebraska, Missouri and Kansas are to the effect that peach buds are in very bad shape, being nearly all dead. This fact will allow the severe pruning of those which were broken by last season's heavy crop. Jacob Faith of Vernon County, Mo., writes:

"I have examined fruit buds and vines in different localities and find nearly all peach buds killed. In favored localities the varieties hardy in bud may bear a light crop. The cause of fruit buds not enduring more cold was that after the dry weather the late rains caused much sap to be formed, and before it was evaporated the sudden cold killed the buds. Had the weather turned cold gradually for about six weeks the peach buds would be all alive yet. Apple, cherry and grapes are uninjured. Plum and pear buds injured about 10 per cent. Raspberry and blackberry canes of tender varieties, are injured about 10 per cent. Of strawberries, those well cared for promise a full crop. The past summer was very unfavorable for small fruits. The berries, I judge, will be a little over one-half crop the coming season."

Irregular bowel movements lead to chronic constipation. PRICKLY ASH BITTERS is a reliable system regulator: cures permanently.

Farm and Ranch is a great paper for great people—the home builders' guide to success, the producers' text book. With all numbers on file a subscriber has a valuable library and an excellent source of reliable information for brainy, business home makers.

Farm and Ranch is an educator, a moral preceptor, an interesting, reliable and instructive weekly visitor to over 40,000 homes. When known to them every intelligent, progressive family in the Southwest will read it weekly. As a family, farm and stock journal it has no equal.

Every department is under the charge of an editor of known, recognized ability. Its illustrations are unexcelled in attractiveness. At its price it is the greatest bargain ever offered the people. Three months, 25 cents; six months, 50 cents; one year, $1. Sample copy free. Liberal premiums and cash commissions to agents.

FARM AND RANCH,
Dallas, Texas.

BUSINESS OPPORTUNITIES FOR ALL.

Locations in Iowa, Illinois, Minnesota and Missouri on the Chicago Great Western Railway, the very best agricultural section of the United States, where farmers are prosperous and business men successful. We have a demand for competent men, with the necessary capital, for all branches of business. Some special opportunities for creamery men and millers. Good locations for general merchandise, hardware, harness, hotels, banks and stockbuyers. Correspondence solicited. Write for maps and Maple Leaflets: W. J. Reed Industrial Agent, 604 Endicott Building, St. Paul, Minn.

We have received the annual catalogue of the J. Wragg Sons Co., Waukee, Ia., which is one of the neatest we have seen. This firm is building up a splendid catalogue trade, and each season its printed matter shows an improvement over that of the preceding season. The book is well written, well printed, and is illustrated with views of the splendid grounds of the company, with cuts of fruits and specimen evergreens, etc. This firm, we are sure, will be glad to send copies of the catalogue to readers of the Western Fruit-Grower who

Mr. B. H. Greider, the well known poultryman of Florin, Pa., a regular advertiser with us, is breeding fifty varieties of poultry to a very high standard of excellence. Mr. Greider's catalogue for the year 1902 is now ready for distribution. It is one of the best books of its kind, and is beautifully illustrated in colors. It describes all his varieties of prize winning poultry, and gives a great deal of interesting and valuable information on poultry topics. It is worth a great deal more than the ten cents in silver or stamps asked for it. Address, B. H. Greider, Florin, Pa., and mention Western Fruit-Grower.

H. J. Cantwell, of St. Louis, will plant 35,000 fruit trees near Potosi, Mo. This is the section which our friend, Butterfield, has been recommending for fruit culture. Land is cheap, and the St. Louis market is almost at hand.

Surplus in Apple

For Planting in the Spring of 1902

York Imperial, Jonathan, Smith Cider, Clayton, Minkler, Fall Pippin in 1 and 2-year-old.
Clayton, Roberson Pippin, INGRAM, Mam. B. Twig, Jonathan, in 1-year-old.
Prices on application.

Tippin Bros., Nichols, Mo.

Japan Plums and Peaches

100,000 Red June, Abundance, Burbank, Chabot, Normand and Satsuma, $40, $50 and $60 per 1,000, boxing free. Also Elberta, Waddell and Carman Peaches PROPAGATED DIRECT FROM FRUITING TREES in our 2000 acre orchard, Fort Valley, Georgia.

Can ship any day all winter. Name special wants on above; also WRITE FOR FREE CATALOGUE, new peaches, plums, berries, big sweet chestnuts and general nursery stock.

J. H. Hale, South Glastonbury, Conn.

Clover
Timothy
Millet
Cane
Alfalfa

FARBER SEED CO.

Blue Grass
Seed Corn
Soy Beans
Cow Peas
Dwarf Essex Rape

And other Field and Grass Seeds. Office 731 So. Fourth St., St. Joseph, Mo.
Telephone 200. Samples and Correspondence Solicited. Mention Western Fruit-Grower.

THE ALABAMA PEACH

IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring, and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries

also a success. Also general farm crops—Sugar Cane, Tobacco, Rice, etc.

300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

FOR MAPS, FOLDER, ETC., ADDRESS

ALABAMA LAND & DEVELOPMENT CO., MOBILE, ALA.

GEO. KILBORN, Secretary. HENRY FONDE, President.

High-Class Nursery Stock

We offer to the trade this year a fine lot of trees of all kinds, small fruits, ornamentals, etc. Our stock is unusually fine, and unaffected by past drouth, as we had abundance of rain up to middle of July, and never a longer period than week or two without a nice refreshing shower, which kept our stock in thrifty condition. From the latter part of August rain has been abundant here, hence our stock is superior to that grown in localities where drouth prevailed to a damaging extent. Our handsomely illustrated catalogue and fruit manual free to all who apply.

Prices Are Right. Satisfaction Guaranteed in Every Way.

The Humboldt Nurseries, Humboldt, Neb.

SEED CORN

Drouth Resisting! We have it! Send 2-cent stamp for samples, prices and testimonials to J. B. ARMSTRONG & SONS, Shenandoah, Iowa.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.
PAW PAW, MICH.

FOR SALE

Hardy Varieties of All Kinds of
TREES AND PLANTS
Also best Insect Traps and Powders.

J. R. RICE, Council Bluffs, Ia

Early Harvest

and other blackberry plants for sale at right prices.
T. B. MILLER, Springdale, Ark.

The Farm of the Future

Is to be found in the Arkansas Valley, Colorado. Perfect climate, rich soil.
No drouths. Crops absolutely certain. Large yields.
Fruits, cereals, alfalfa, sugar beets. Irrigation is the cause of success.
Write for descriptive literature. The proper way to go is via

The Santa Fe

Address, W. J. Black, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All adds of farms for sale, or farms wanted, which are intended for this column, will be insterted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

FRUIT FARMS.

DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm.	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres,	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres,	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6000 trees,	7 rooms	5,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,800
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

A COLORADO FRUIT FARM FOR SALE—20 acres, ten blocks from business center of Fort Collins in the great fruit state of Colorado. Land almost level. Irrigated; rich; good markets; beautiful scenery and climate; good roads and water; State College; 3820 trees of choicest varieties in orchard. Four years planted; will have a big cherry and plum crop this summer and some apples besides tons of small fruit. A good six-room house, also barn, etc. Place in best of condition. Business interests in Illinois requires my leaving here at once. Will sell at a bargain. For location and promise this is choice. Albert S. Spaulding, Fort Collins, Colo.

Fruit and poultry farm, 6½ acres, joins town, good building, (photos sent) home market, high prices, write quick. H. L. Luce, Inavale, Neb.

14 ACRE FRUIT FARM AND NURSERY FOR SALE.
2100 Fruit trees, mostly in bearing, all planted to small fruits and nursery stock, in town, and at railroad station. Near lakes and river, fine fishing, a great boom; erecting a Portland cement plant costing three million dollars; will employ one thousand men. Correspondence solicited. Alva Y. Cathcart, Bristol, Indiana.

Fruit and grain farm for sale: 3½ miles from city. county seat; railroad machine shops, good market, good roads; 80 acres in winter wheat; place well improved; 25 acres orchard. 225 acres under plow, balance in pasture. For further information, terms, etc., address W. Hicklings, McCook, Neb.

FOR SALE—A ten-acre fruit farm adjoining city of Omaha, near motor car line, very productive. Thos. A. Creigh, 552 Bee Bldg., Omaha, Neb.

FOR SALE—Good farm, 280 acres, in Clay county, Nebraska. Address Thos. A. Creigh, 552 Bee Bldg., Omaha. Neb.

Eighty acres fresh upland, underlaid with Richmond Coal, four miles South Richmond, Missouri; five room new frame dwelling; fine soft water in abundance; 25 acres bearing orchard. $5,000. Geo. A. Stone, Richmond, Mo.

Fruit and grain farm. 90 acres, fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

Bargains in Garden Plows. Economy and profit to user. R. C. Buckley, Peoria, Ill.

WE TELL how to transfer photographsand printed pictures for one dime. Send at once. Western Supply Co., Augusta, Ark.

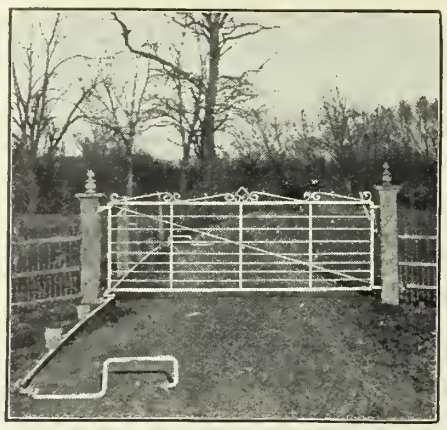
Chance to Get a Farm Paper Free

Send ten cents to pay postage, also names and addresses of five of your farmer friends and we will send you the MISSOURI VALLEY FARMER for one year free. Regular price 50 cents. The Farmer is one of the best farm papers in the west and will tell you more about agriculture and live stock conditions in the great southwest than any other publication. It will tell you all about opportunities in the west for people without capital, and how you can obtain free homes and good farming lands. It is filled with western stories and up-to-date articles written in the breezy style of the west. The Farmer is the most popular family paper in the west and has a greater circulation than any other publication of its kind.

Missouri Valley Farmer, Topeka, Kas

Please mention the Western Fruit-Grower.

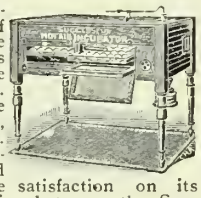
MANLOVE SELF-OPENING DRIVE GATE.



The advantages of a gate which opens and closes automatically are clear to every person who has a regard for the appearance of his home or the value of his time. There are few but can call to mind some serious accident caused by leaving a team to open the old-fashioned gate. The Manlove Self-Opening gate does away with this annoyance and danger. As a vehicle approaches it opens, and when the team is through it closes. It never makes a mistake or gets out of order. Few items are more used around a home than the driveway gate. The time saved is immense and its presence enhances the appearance and value of any place. They are sent complete ready to set up and are no trouble to fix. Send for illustrated catalogue to Manlove Gate Company, Milton, Ind.

A Really Successful Incubator

No incubators are better known, or are more widely popular than the Successful Incubators, made by the Des Moines Incubator Company of Des Moines, Iowa. The factory of this company is believed to be at least as large as that of any similar institution in the world..



The Successful Incubators are the result of the study and experience of incubator experts who devote their whole time to this business. They are made of the best possible materials, and are fully guaranteed. A few years ago no incubator company would have dared to guarantee satisfaction on its products, but such an incubator as the Successful is no longer an experiment. The readers of Western Fruit-Grower are well aware that with practically no exceptions, the largest and most successful poultry farms hatch chickens by artificial incubation. Poultrymen find incubators necessary to the economical production of chicks on a large scale. Many of the best known breeders of poultry use the Successful Incubators and Brooders exclusively.

So large has the volume of business done by this company in the east become, that a branch office and warehouse have been opened in Buffaloa. N Y r m which the Successful Incubators and brooders are shipped to customers in the eastern states at a great saving of time and expense to the purchaser. Large quantities of these machines are also shipped to foreign countries.

Five different catalogues in five different languages are published by the Des Moines Incubator Company. They are all free except the catalogue in English, for which a charge of four cents is made to cover postage. No more instructive book on poultry culture can be secured anywhere than one of these attractive catalogues.

The Successful Incubators and Successful Brooders have well earned their title, "Life Producers and Life Preservers" The company requests that all correspondence be addressed to the office nearest the writer.

The incubator exhibit was no small feature of the recent poultry show in Des Moines, Iowa, and the elegant one given by the Klondike Incubator Company as a sweepstakes premium was the center of attraction. It was given for the largest number of White Wyandottes scoring 90 points and over, and was won by Mr. J. D. T. Hall, of Des Moines, Iowa. It was the universal sentiment that it was the handsomest machine on exhibition, and won well deserved plaudits from the largest poultry raisers present, many of whom are using them. The Klondike Company are to be congratulated upon the marked success that has followed the introduction of their machines on the market. Starting three years ago in a very modest way their increasing business demanded more room, and necessitated removal to their present quarters, consisting of a large double front, three stories and basement building on West Second street, with a working floor space of 17,000 square feet, and present indications are that ere long they will again be compelled to lease or erect quarters of sufficient capacity to meet the demands upon them for some years to come. We commend the firm as being entirely reliable and who will carry out any agreement that they may make. See advertisement and write Klondike Incubator Co., Box 918, Des Moines, Iowa.

COUNTRY LIFE IN AMERICA.

The January Country Life in America is a California Number with superb pictures characteristic of this unique and beautiful magazine, and wholly devoted to the out-door world on the Pacific Coast. The special covers show big trees of the Sierras, and a magnificent frontispiece, the blooming orchards at the foot of snow-capped mountains. The leading article, by L. H. Bailey, tells of the diversified beauties and peculiarities of the land that flowers in winter and sleeps in summer, where thunder storms are not, and where the sun shines everlastingly. Pioneer days are recalled by "The Heroes of the Firing Line," a poem by Joaquin Miller; the trend of wonderful development is the theme of "Country Life in California," by A. J. Wells; and "The story of a Great California Estate," by Charles Howard Shinn, naturally follows. Throughout, the unusual opportunities for illustrating California at its best have been well taken, but of particularly striking beauty are several series of photographs. Of these, "The Cypresses of Monterey" show a picturesque feature of the Southern coast; the Yucca palms and Gila monsters, the weird life in the Mojave desert; and the poppies and poppy-worts furnish the color that gives California its fame as a land of flowers. Then, in a practical way, a portion of the number is devoted to the making of homes and gardens, the culture and commercial handling of fruits, and to many aspects of the soil. Certainly Country Life in America grows better with every number, and proves the grip that life under the open skies has upon us Americans.

BURPEE'S FARM ANNUAL FOR 1902.

This is the twenty-sixth annual edition of this popular catalogue and will be mailed free to any reader of this paper who sends his address to W. Atlee Burpee & Co., the Philadelphia seedsmen. It is a handsome book of 132 pages, beautifully printed and evidently prepared with unusual care. It has been written at the firm's famous Fordhook Farms, which are so widely known as the largest trial grounds in America. Besides hundreds of illustrations, mostly engraved from photographs, it shows six superb vegetables and five of the finest new flowers, in colors, painted from nature. The new "Bull's Eye System" will be especially useful to inexperienced planters, while all can rely upon getting upon direct mail orders, only the best seeds that can be grown. We recommend our readers to send for a copy and to carefully study this useful and trustworthy catalogue. It is sufficient to write a postal card to Burpee, Philadelphia.

CYPHERS INCUBATOR CATALOGUE FOR 1902.

All who have seen a copy of the magnificent catalogue issued a year ago by the Cyphers Incubator Company will be interested to learn that this company's catalogue for 1902 is now ready for mailing and is a distinct improvement over their great book of last year.

This new and complete catalogue consists of 196 pages and cover, is 8x11 inches in size and weighs over one pound. It contains a complete description of the Cyphers patent diaphragm, non-moisture, self-ventilating incubators, with fine color plate reproductions of all sizes of the Cyphers incubators. It contains also an illustrated description of the Cyphers apartment brooders, and the full line of poultry appliances manufactured by this company. In it will be found beautiful half-tone pictures of over 200 of the largest and best known poultry plants of America, Canada and Europe where the Cyphers incubators are in use.

The Cyphers Incubator Company is now completely installed in its great factory at Buffalo, N. Y. The company also has offices and salesrooms in Chicago, Boston and New York City, and is in a position, therefore, to serve customers to advantage in all parts of the country at a saving of time and money in shipping by freight.

All who are interested in the latest developments in incubator and brooder manufacture should secure a copy of the Cyphers Incubator Company's complete catalogue for 1902. See advertisement elsewhere in this paper.

GOOD SEED CORN.

Elsewhere in this issue appears the advertisement of J. R. Ratekin & Son, Shenandoah, Iowa, seedsmen, who make a specialty of seed corn, and we call special attention to these ads. The wise farmer will get his seed corn early this season, and he will also try to get good seed. We can only quote the following from a circular issued by the firm named:

"Cheap, inferior and unreliable seeds can always be bought at cheap prices, but they are dear at any price, even as a gift, and are ruinous to the man who plants them. We have had a thousand farmers tell us and write us that seed corn bought from fakers has cost them from $10, $20, $30 and as high as forty dollars per bushel in the results of their crop. This is not at all unreasonable, as one bushel of good seed corn willplant from seven to eight acres and if by planting a poor grade of seed you obtain but a half stand and but half a crop you have lost at least five dollars per acre on seven or eight acres of ground, which would be equal to the highest amount stated. If he planted an inferior variety and it gave him one-half what he should have obtained from good seed and good varieties he has thus likewise lost one half his crop by simply economizing and buying seed at a reduced price of about five cents per acre."

PLANET JRS. FOR 1902.

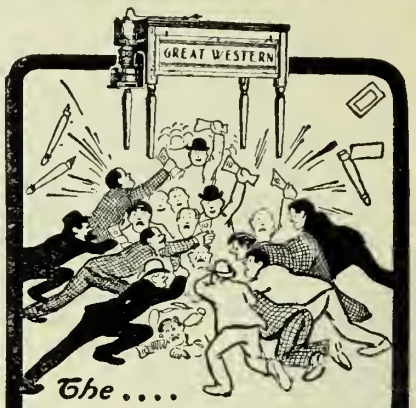
We are just in receipt of the 1902 catalogue of S. L. Allen & Co. of Philadelphia, Pa. As most of our readers must know, these people are the manufacturers of the world famous "Planet Jr." garden and farm tools. These tools have been advertised regularly in our paper for the past several years, and undoubtedly many of our readers are now using these splendid tools. We look forward with much pleasure each year to the coming of the "Planet Jr." catalogue. This is so for the reason that it is the very best and most instructive thing of the kind which reaches our table. This new catalogue is the equal of its worthy predecessors, and we do not know what more could be said in its commendation. The seventeen half-page illustrations show the various uses of "Planet Jrs." in this and other countries for all kinds of purposes and by all kinds of people. A number of entirely new things are shown for the first time. The book is handsome, instructive and valuable, and if you have not already secured a copy you should write for it at once. For correct address, see the advertisement elsewhere in this issue.

SWEET FRUIT TREES.

Lest our readers misunderstand the above we will explain that they refer to the stock grown and sold by the Geo. A. Sweet Nursery Co., of Dansville, N. Y. This is an old established house which has adopted the plan of selling direct without agents or salesmen, preferring to make lower prices by reason of the saving. Their plan of clubbing orders is a novel one, which will interest a large number of our readers. Their line is complete, and embraces everything sold by a first-class nursery. Write for their catalogues, which are free, and mention this paper.

"SNOR-O-DONT" is a new device to prevent people (not poultry) from sleeping with open mouths. Sleeping with open mouth is the FIRST cause of a large percentage of all nose, throat and lung troubles. It cannot be prevented only by some mechanical agency. Snor-o-dont does it completely and stops all snoring instantly. Read the advertisement.

I have sold my fruit farm and bought a place with only a few trees on it, but I find I need the Western Fruit-Grower as badly as I did when I owned a large orchard.—P. M. Groves, New Hope, Mo.



The ....
Great Western INCUBATOR

is on top of the heap this season, and the people are scrambling for it. It is no wonder, when we come out and offer a hundred egg, three wall, kiln dried poplar case, 12 oz. cold rolled copper tank, hot water system, safety lamp, asbestos covered boiler, and all the latest improvements for a ten dollar bill, and send it on 40 Days Free Trial. Order one of these machines for comparison, and set it up along side of any incubator made at any higher price, and if it does not out-hatch the other machine, send it back to us without a bit of expense to you. This is the best incubator bargain ever offered, and you should take advantage of it at once. Remember the copper tank, three walls, hot water heating system. Write for free catalogue.

Great Western Incubator Co., Dep.R, Kansas City, Mo.

Is It Wise to Guess at Results

when you may be absolutely sure about it? If the eggs are good and you put them in a

Reliable Incubator

and follow instructions, you are sure to get a satisfactory hatch. If you put the chicks into a

RELIABLE BROODER

you will raise every one that could be raised in any other way. Our 20TH CENTURY POULTRY BOOK tells why and a hundred other things every poultry owner should know. Sent for 10 cents. We have 115 yards of thoroughbred poultry.

Reliable Incubator and Brooder Co., Box B 124, Quincy, Ills.

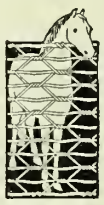
PANTOP'S Silver Laced Wyandottes

Thirty Cockerels scoring 90 to 92, for sale. True Wyandotte shape, fine lacing, especially strong in Laced Wing Bar. Trios and pens for sale. Correspondence solicited. James M. Rogers, Elsberry, Mo.

MONEY IN POULTRY The farmer who raises for market; the beginner just starting in the business; the village poultryman; the keeper of a "few hens," on a city lot, will find help in

THE POULTRY KEEPER.

An Illustrated Poultry Monthly Magazine. One of the oldest and best. Established in 1884. Contains advice on mating, feeding, housing, remedies for poultry aliments, special articles by experts. 50c per year, 10c for 3 mo. trial. Poultry Keeper Pub. Co., Box 902, Quincy, Illinois.



DUPLEX MACHINE

The only successful field fence maker. Ball Bearing, Automatic, simple, life-lasting.
A Child Can Operate It.
A level headed boy can take it apart and put it together. It makes most perfect
Fence at Cost of Wire.
Machine sent on Trial. Plain and Barbed Wire at Wholesale Prices. Catalogue Free.
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The Illinois Horticultural Meeting

Annual Gathering at Champaign Was a Good One

THE meeting of the Illinois State Horticultural Society, which was held at Champaign, Dec. 10 to 12, was an enjoyable one in every way. The attendance was fair, and the display of fruit good. The discussion of the different papers was spirited, and the papers themselves excellent.

Officers for the ensuing year were elected as follows: President, H. M. Dunlap; vice president, H. A. Aldrich; secretary, L. R. Bryant; treasurer, J. W. Stanton. All the officers served in the same positions last year, except Mr. Aldrich, who succeeds Mr. Young.

Among the visitors from other states was Roland Morrill of Michigan and Texas, who talked at the first session and again Wednesday morning. One number on the program Wednesday was a paper by Dr. W. K. Jacques of Chicago, on "Preparation and Management of Orchard Soils." This was an excellent paper, and we will publish it in full at a later date. Mr. Morrill complimented the paper, and speaking of cover crops, said crimson clover does well in many sections, but he has never been able to get it to grow in his orchards in Michigan.

The question box being opened, the following questions and answers were developed:

What is best early strawberry for Central Illinois? Bederwood.

Best three strawberries for family use in Central Illinois? Mr. Reasoner said Warfield, Cumberland and Gandy; Mr. Augustine said Mr. Reasoner was too modest, for he should have added Senator Dunlap by all means.

Are bees necessary in an orchard, to properly fertilize blossoms? If so, how many colonies to an acre?

Dr. Burrill said it would be hard to say how many bees could be profitably used. "It used to be thought bees were not necessary to secure proper fertilization," said the doctor, "but it is now generally accepted that while blossoms can be fertilized without the bees, the work is better done with the help of insects. Apple pollen can be distributed in part by the wind, but it is better done by the bees. Some varieties fertilize more readily than others, and in some seasons there is a great difference, in that sometimes the wind does better service in securing the proper fertilization of blossoms. I would say that it is not best to plant large blocks of any one variety, for the mixed planting will secure better results, whether the work is done by bees or wind. As to the number of bees needed, would say that if the day is sunshiny and not too windy, one colony will do a lot of work."

Mr. Baxter of Nauvoo, an experienced man: "We have 350 colonies of bees in three locations, and they travel three miles or more when the weather is good. If there is an apiary of 50 colonies within two miles of an orchard, I believe the bees will help fertilize the blossoms. Bees are a great help among strawberries also. We had a planting at Fort Madison, Iowa, which gave poor crop, but when we took 50 colonies of bees over, they worked on the blossoms. There are persons who claim bees will not work on strawberry blossoms, but they are mistaken."

What are three best early peaches for commercial orchard? Mr. Foster named Early Crawford, Champion and Elberta.

What is best cling to raise for market in Central Illinois? One recommended Ringgold, a yellow cling, with many good qualities. Mr. Young said Heath, and Mr. Riehl said he would plant the Wilkins, which is a splendid variety.

Do peaches keep as well in cold storage as apples? Yes, they will keep, but lose flavor, and the practice is not recommended.

Should apple trees be headed high or low in Illinois? Mr. Aldrich would head medium, so as to be able to get under branches to cultivate. As a rule, he believes nursery trees are headed too low, for this reason.

Roland Morrill gave a very interesting talk on "Weak Places in Orchard Management." Mr. Morrill's talk was impromptu, but interesting nevertheless. He began by saying that he had observed that the management of orchards was generally weak. One of the most common weaknesses is the lack of planning before the orchard is started. Too often an orchard is planted on the spur of the moment, with no previous preparation. This often results in selection of poor locations; in Michigan there are many good meadows and cornfields spoiled by poorly kept orchards. Another weakness is in not getting the best possible service from every tree in the orchard. When a tree does not start off well the planter should know there is something wrong; it is apt to be defective somewhere and should be thrown out and a good one put in its place. Try, by all means, to have your trees start right.

"And then lay your orchard out right," said Mr. Morrill. "I prefer straight lines for my tree-rows, for then cultivation is easier. It does not take much more labor; only a little more brains. And a fruit farmer must use his brains. If there is one thing needed to succeed it is good hard sense, and lack of it is the cause of many failures. Now, I don't say I have the required amount, but I do say the man who hopes to succeed must have sound judgment.

"I believe in heading trees low, if possible. If there were no climatic reasons for heading the trees low, I would do it any way, and give the tree a short body. The tree must be pruned, and the fruit must be picked, and every foot in height above what is absolutely necessary increases the cost of both of these operations. This increased cost, caused by the higher tree, may mean the difference between profit and loss in a large orchard. And then the tree with the shorter head can withstand the winds better, for there is not such a leverage. For the same reason I would keep the limbs shortened, and the tree compact.

"Now, I assume that all orchards should be cultivated. But we often use implements which are unsuited to this work, when a few dollars will give us what we want and which we can use to advantage. It is poor economy to use poor implements in orchard cultivation. I believe in growing good fruit, for I have never seen the time when buyers with money in their pockets were not looking for fruit, which was first class. If all the labor expended on Illinois orchards were intelligently directed, your profits could be doubled, and if the labor which is now expended were doubled, and intelligently applied, the profits could be quadrupled."

Being asked how much he would cut back a peach tree one year set, Mr. Morrill said it was hard to tell one; the work could be better illustrated in the orchard. Generally speaking, he would back one-half to two-thirds of the new growth, using great care that this cutting back was distributed so as to balance the tree. This continual cutting back will necessitate thinning out some of the branches, because the growth would become very thick in the center of tree.

Mr. Morrill was asked what he thought of a windbreak for a peach orchard, but said the farther away it is the better. He wants his peach trees on exposed locations, to prevent winter swelling of the buds. The discussion also developed that the windbreak is not well thought of in Illinois for apple orchards, either, on account of preventing free circulation of air, and also because the windbreak is apt to cause the buds to swell in warm days in winter.

Speaking further on subject of cutting back peach trees, Mr. Morrill said he used good, vigorous trees, tries to get a good growth and then tries in his pruning to get a well balanced tree, pruning to force the principal growth in the direction of the prevailing winds. After the first year he cuts back part of the growth of previous season and thins out the inner branches.

"I know that many people want a strong 'leader' for their peach trees," said Mr. Morrill, "but in Michigan I cut out the main leader, leaving an open vase form. When the tree is loaded with fruit the top opens out,

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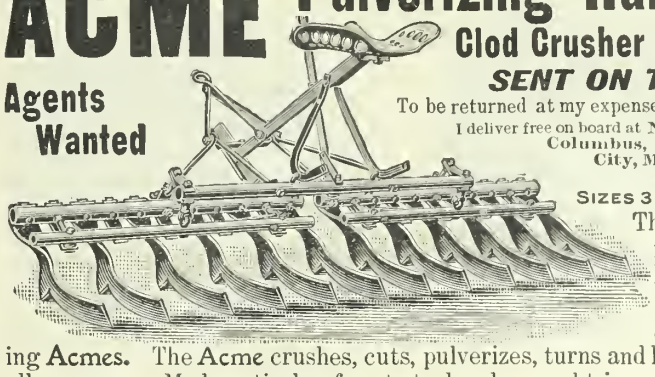

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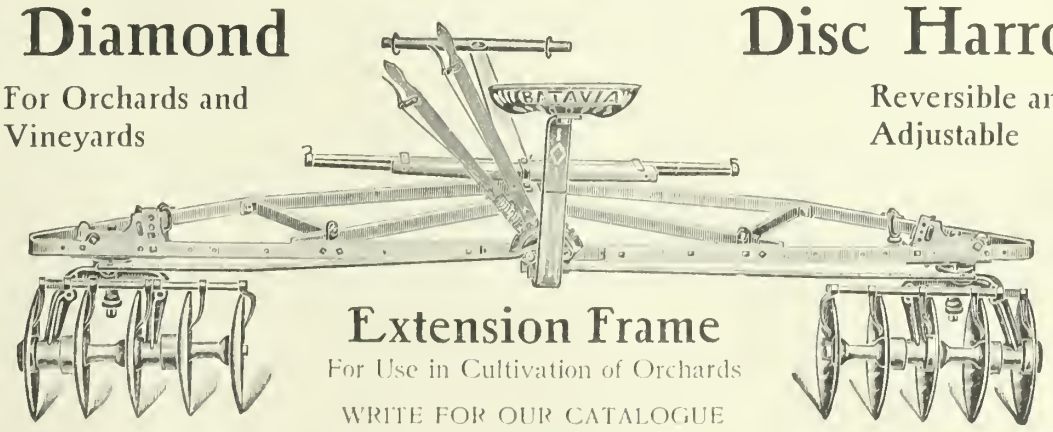

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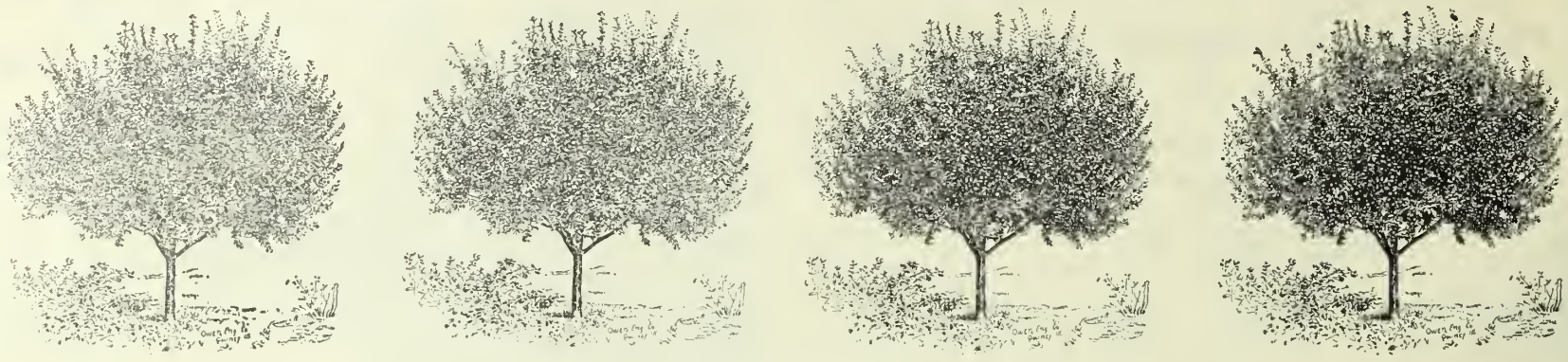

A Row of Six-Year-Old Missing Link Apple Trees

Average height, 17 feet; width of top, 20 feet; circumference at base, 21½ inches.

The above is a correct representation of a section of a Missing Link Apple orchard, grown by the Missing Link Apple Co., Nurserymen, Clayton, Illinois. This photo was taken July 23d, 1896. These trees began bearing in fourth year from planting and have not missed a crop since. They are now eleven years old.

This Is the Farmer's Apple For he cannot afford to buy cold storage apples and he has no storage of his own. Hence is without apples from early spring until summer apples ripen

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Will keep 12 months in any cellar. Its flavor is equal to any pear after March 1st. The tree is iron clad against cold or heat. The fruit and foliage is Fungi Proof; it does not need to be sprayed, as it will develop its fruit without it.

IMPORTANT:—At each of the annual meetings for the years of 1897, 1898 and 1899, the Illinois State Horticultural Society awarded the MISSING LINK APPLE the first premium as the best New Apple "Worthy to be Recommended." See report of committees on awards, Class 1, in each annual report for the years above named.

Testimonials Regarding the Missing Link Apple :

I. M. Larimore, Plainville, Ill. I have tested it in my cellar and never saw its equal as a keeper.
James M. Houck, Medora, Ill. I used an apple of crop 1897 for sample apple in my canvass from May, 1898, until March, 1899.
George D. Main, Carthage, Ill. Have handled the Missing Link apple for three years, and never saw anything to equal it for keeping or quality.
Geo. I. Fields (Editor Versailles Enterprise), Versailles, Ill. I have tested the Missing Link apple, and found it a wonderful keeper.
S. M. Ham (Orchardist), Barry, Ill. I have tested the Missing Link apple, and am satisfied it is all you claim for it.
D. M. Thompson, Vanndale, Ark. Have kept the Missing Link apple in my cellar in prime condition for 18 months.
B. M. Stone, Stull, Pa. Have exhibited the Missing Link at many County Fairs in this State and in every case won highest awards.
H. H. Kellnor, Danbury, Conn. Have exhibited Missing Link at our fairs and won on every entry.

A GUARANTEE OF $5 IS PLACED ON EACH TREE THAT IT WILL BE TRUE TO NAME.

Each purchaser protected under U. S. Trade Mark No. 31,993 as well as the Disseminators of the Missing Link Apple.

We pay shipping expenses to any part of United States or Sanada.

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MISSING LINK APPLE CO., Clayton, Illinois

the sun and air get to all the fruit, and every peach is well colored, and I believe in well colored peaches."

One gentleman said he pruned his peach trees while they were in bloom, using the pruning as a thinning process, also, cutting out where the blooms were the most numerous. Mr. Morrill said he also thinned the fruit by his pruning, but did not do it while in bloom. He does it before growth starts in spring; the work can be done as well then, and there is not danger of injuring the tree as is the case where the work is done while trees were in bloom. He would not prune any trees while in blossom, nor at any time after the tree has set fruit; do this work in spring before growth starts.

Mr. Morrill was asked as to the value of whitewashing peach trees to retard the blooming in spring, and said there may be something in it; he has not tried it, and does not know whether it can be done commercially. He referred to Prof. Whitten's experiments in this line, but had never tried it himself.

While Mr. Morrill was on the platform he was subjected to a multitude of questions, and when the subject of cultivation was brought up the discussion was very animated. The matter was brought up by a question as to how he would manage an orchard in rich Illinois soil; asked how it would do to plow early in spring and later allow weeds to grow, to prevent trees making too rank a growth. Mr. Morrill smiled and said, "Now, there are soils where that plan might do, but I would hesitate to advise such a course with my orchard. There are soils in which trees will grow too rank to be perfectly hardy, and some plan will have to be adopted to help ripen the wood in late summer, but at the same time there is no more sure way of ruining an orchard than to allow it to mature a crop of weeds in midsummer, thus maturing the wood of trees early; later, with the weeds dried up, the rains will come and start a new growth, the buds will swell, and the tree will be permanently injured.

"I believe I would cultivate that orchard in rich soil early in the season, giving good growth to trees, and then plant a cover crop to help ripen the wood of trees and remain on ground over winter. For this crop I prefer oats; it will make a good growth in summer, will cover ground in winter, be dead by spring, and plowed under will add much humus to the soil."

Mr. Augustine asked if it is not a good plan, when the sun is very hot, to have a cover of weeds or growth of some sort to protect the soil from direct rays of the sun. Mr. Morrill said he did not believe any form of protection would equal a dust mulch. "I would by all means avoid a crop or any form of treatment which would check the growth of trees in midsummer; to do so is almost fatal. Later the planting of a cover crop will check the growth, help ripen the wood and send the trees into winter in good shape."

Mr. Marshall of Nebraska said he believed planting corn in a young orchard is all right, taking care that rows are not too close to trees, and that the corn is cultivated as late as possible. When trees are too large to plant to corn, would plow the orchard early in spring, then cultivate with disc or cutaway harrow until about middle of July, and then allow weeds to grow. "Mr. Morrill uses oats, but we use the weeds, which seed themselves," said Mr. Marshall. Another suggested that oats would grow too high if planted in middle of season, but Mr. Morrill said if he had given his orchard good cultivation up to the time he planted the oats, he would be glad if they would then grow very rank, eight feet high if possible, for then they would better serve the purpose for which he planted them.

Regarding windbreaks, Mr. Marshall said they were a good thing in Nebraska; would have one around the home orchard, at least, and in a large orchard the inside trees would have a windbreak, anyway, for the outer rows would act as such. Others spoke regarding the windbreak, and President Dunlap said it depended on what kind of a windbreak was planted; if it were of trees which were headed very high to allow the air to circulate freely under the lower branches, he believed it would be all right.

Mr. McIlvane, in speaking of orchard cultivation, made a plea for the plank drag; he discs the soil in early spring, then harrows well, and follows with a plank drag; the latter is a splendid thing to get the soil into good condition. Mr. McIlvane also recommended the plan of placing tobacco stems around the trunks of trees.

Mr. Perrine asked as to the advisability of plowing the orchard early in season, and when ground was warm drill cowpeas 30 inches apart, to shade the ground, cultivating the peas as long as possible. Mr. Dunlap, in reply, said he knew of an orchard which bore good fruit in which cow peas were planted middle of June and kept cultivated as long as possible.

Mr. Winn made a plea for the Hallock weeder for the fruit farmer and general farmer; he believes the latter class do not appreciate the value of this implement; he used it on his corn the past season with the best of results. He certainly believes it should have a place on every farm.

The whole discussion of the subject of cultivation showed that nearly every member was convinced of the necessity of it. There was a difference of opinion as to the proper handling of different soils, and this problem will have to be solved by everyone for himself, but there seemed to be a unanimity of opinion that fruit farmers must do more cultivating than they have in the past. On level soils the majority seemed to favor thorough cultivation until middle of season, then planting a cover crop of some sort, cow peas having the preference in Southern and Central Illinois. As to just when cultivation should cease, it depends much on the season. If at the time, say middle or last of July, there is a drouth prevailing, keep cultivating until the drouth is broken. Every year there is a dry spell about this time, and it seemed to be the consensus of opinion that cultivation should not cease until the drouth had been broken with a good rain. On hill soils, which are apt to wash, there was a sentiment in favor of cultivating early in season, then plant cow peas in drills, cultivating the peas as long as possible. This will tend to prevent washing, and the soil will not bake as hard as if bare and uncultivated.

"Grape Growing for the Farmer," was the subject assigned E. A. Riehl, but this gentleman said he would change the title to include everybody, for no fruit is so suited to culture by everybody as is the grape. It will grow in nearly every place where other fruits will grow, and in many places where others will not. Grapes can be trained on porches or walls, so that even the city dweller can have his own vines. Mr. Riehl would plant good one-year vines, preferring them to two-year vines, even at same price. Would plant in rows six feet apart, and not less than six feet in row. First year let the young vine grow as it will; second season allow only two canes to grow; the third year prune not quite so close, and a little fruit may be secured, but allow only a very little to mature. After treatment should be so managed as to prevent overbearing at any time. Trellises, if two wires, give best support. Spraying with Bordeaux mixture should begin before growth starts in spring, and continued at intervals of two or three weeks, to prevent rot. If one does not want to spray, the bunches may be sacked after berries have formed.

For home use Mr. Riehl would plant Moore's Early, Cottage, Moyer, Green Mountain, Concord, Worden and Niagara for main crop; if others are desired add Goethe, Moore's Diamond, Hopkins, Norton's Virginia and others. To keep grapes until late in season, Mr. Riehl advised sacking early in season; leave on vines until hard frost is threatened, then cut and leave in sack, placing the bunches in shallow layers, and put away in cool place.

One gentleman would not allow the vine to grow at will even the first year, but would then begin to train two strong canes. Mr. Baxter agreed with what Mr. Riehl had said. He prefers high locations for grapes; plants one-year vines, which grow at will first year, and are then cut back to about four buds. He prefers three-wire trellis.

"We cannot get along without spraying grapes to prevent rot," said Mr. Baxter. "The rot can be controlled absolutely by spraying with Bordeaux mixture, except that we do not use as much lime as is used in the regular mixture. Where spraying is done, grapes are as sure a crop as anything that can be grown."

Some one asked if grafting Delaware on strong-growing sorts, such as Ives, would increase its vigor of growth, and Mr. Riehl said it would help for a time, and sorts which are

subject to phylloxera can also be grafted on resistant stocks.

One of the best things of the session was the discussion of "Canker Worms in Orchards and Towns," by Dr. S. A. Forbes, state entomologist, who also touched on his work of nursery inspection.

Dr. Forbes said the canker worm is one of the oldest of fruit insects; it is widely distributed through Southern Illinois. Its life history is short, occupying about three to four weeks, ending the middle of June. The insect feeds on forest trees as well as orchards, and last season defoliated the giant elms of Jacksonville, Ill. The trees were sprayed, but the damage could have been prevented much easier and cheaper.

"The female canker worm, which is wingless, comes from her winter quarters about the time the buds begin to open in the spring," said Dr. Forbes. "She crawls up the trunk of the thee and lays her eggs in great numbers on twigs; these eggs hatch in a few days, depending on temperature somewhat, and then the larvae begin to feed on the young leaves. They feed for a week or so, and then drop to the ground to pupate.

"Now, the best way to arrest the injury is to spray the trees early with an arsenical mixture. This spraying should be done very early, just as soon as the smallest worms are seen. The rapidity with which the worm grows, the great numbers of them on a tree, and the terrible destruction which can be done by them in a short time makes it necessary that the spraying be done early. It has been claimed spraying will not kill the wroms, but this is not true. If the spraying is properly done there can be no question of the results. If the trees are badly infested, two sprayings may be necessary, but if the mixture is applied just before blooms are opening one spraying should be sufficient.

"I have told you how to arrest the work of the worms; but a better plan is to prevent any injury by preventing the ascent of the wingless female moth. This is done by applying a band of sticky substance around the tree to catch her. This application should be made early in March. If in danger from the fall canker worm, which differs from the spring canker worm in that the eggs are laid in fall, this application should be made also in September. If one desires to put a sticky substance on the tree which may injure the tree, the stuff can be put on a paper band, and this band tacked to the tree, taking care that it fits tightly against the tree, so the moth cannot get under it."

Dr. Forbes also told of the green fruit worm, a caterpillar an inch to an inch and a half long, which feeds on the apple fruit. It is a pale straw color or yellowish, with three stripes. It comes from the forest, and is most often found in orchards near the same. Moths laying the eggs are night flyers, and are attracted to lights. Spraying is often ineffective, except that one early spray may get the worm when it feeds on the leaves. The worm falls to the ground, like the curculio, when tree is jarred, and may be fought in the same way the last-named insect is.

A new insect which feeds upon the leaves of apple, causing minute holes, is called flea weevil. It is a minute black beetle, hopping like fleas.

Touching another insect in nurseries, Dr. Forbes said the pear leaf blister can be prevented by winter spraying with kerosene emulsion or by fumigation.

In June and July a trip was made through Southern Illinois to ascertain what insects were damaging the orchards. The peach curculio was found to be most common, followed by the green apple-worm described above, and then the codling moth in unsprayed orchards. Dr. Forbes said six spraying parties are now at work in Illinois fighting the San Jose scale.

In his work of nursery inspection Dr. Forbes is called upon to report upon diseases of nursery stock. Crown gall has been found on apple, peach and apricot. Prof. Toumey of Arizona, who had experimented with crown gall, was in doubt as to whether the gall of peach and apple were the same, and experiments are now being conducted along this line.

Secretary Barnard of Nebraska told of a nursery in his state which had some trees infected with crown gall, and which were heeled in; later, when roses and ornamentals were planted there, they too became infected. It has been said that to plow quick lime under in such soil will destroy this disease, and this will be tried.

Mr. Reasoner asked if the state inspection law required that shipments of forst tree seedlings be inspected, and Dr. Forbes said not.

The evening session Wednesday was opened with two numbers by the Glee Club of the University of Illinois, which were all received.

Mrs. J. C. Blair of Urbana read an excellent paper on "Fruit in Its Relation to Health." Mrs. Blair believes horticulturists should not only seek to increase fruit consumption because of the fact that it will make better market for their products, but also because by inducing our population to consume greater quantities of fruits they will bring about a more healthful race. At the conclusion of Mrs. Blair's paper, which treated at length of the value of different fruits, she and Mrs. J. L. Hartwell, who read a paper on the opening evening, were tendered a vote of thanks by the society.

"Bitter Rot on Apples" was discussed by Dr. T. J. Burrill, who has investigated the disease. The discussion was of the greatest interest on account of the great damage done in Southern Illinois orchards in 1899 and 1900. Dr. Burrill began by stating that the disease is not a new one. Lately losses have been great, but perhaps not greater proportionately than they were a quarter or half century ago. The apple industry has grown and the total loss is now appalling; this is the reason why we are apt to look upon our pests as being more numerous than before. We hear more of apple scab, bitter rot, codling moth, etc., than we used to, but this is not evidence that the pests are more numerous proportionately. In 1870 a report was made before the Illinois Horticultural Society of great damage by bitter rot, and the disease was still at work in Southern Illinois in 1878.

"In 1899 and 1900 the disease was very destructive south of parallel 39 north latitude," said Dr. Burrill, "and has been found occasionally north of that line. There was little of the disease the past season. This year the weather was hot and dry; last year it was hot and moist. Temperature and humidity are not alone, however, in forming suitable conditions for the disease. Last year the fruit of individual trees in orchards was attacked by bitter rot, and the same trees had affected fruit this year, while others of same variety were unharmed. After our work of the past three seasons, I would say that we know really very little of the causes of the disease, but it seeems that hot, moist weather will facilitate the propagation of the disease.

"During the present year it has been proven that the spores of bitter rot can send their tubes through sound skin of the apple in eight to fifteen hours after lodging thereon. The work is hastened, of course, by a puncture of the skin, but the latter is in no way necessary. In three to five days after penetrating the skin new spores will be produced, thus completing the cycle of the disease. These spores appear on the surface white at first, then pink, then darker. Around the outer edge of the rotten spot are a number of concentric rings, and these, with the pink color of the spores, are characteristic of the bitter rot.

"When they first appear on the surface the spores are sticky and are easily carried by insects; after a while they dry and are not so carried, but can be dissolved again by water. The disease cannot be carried by the wind, however much it may appear to be so spread. While these spores germinate rapidly under favorable conditions, they can be kept in the laboratory for a year, although out of doors they will not live so long."

Dr. Burrill said it has not yet been ascertained definitely just how the spores pass the winter, although there is evidence that the first infection in summer comes from the ground, like apple scab, attacking the fruit on lower limbs first. The spores of bitter rot will germinate in quince, pear, peach, grape or tomato. Insects are the principal agencies in the dissemination of the spores, particularly the vinegar flies which are found around decaying fruit. While the spores canot be carried by the wind, they can be distributed on the tree by water. An infected apple in the top of the tree will be apt to infect other apples below, the disease spreading in a cone shape, with the first-infected apple at the apex.

"Black rot should not be taken for bitter rot," said Dr. Burrill in conclusion. "The former disease is found both north and south, and perhaps causes as much damage as bitter rot, but is not so terrible in the rapidity of its work. In the black rot the exuding spores are first white, then dark, but never pink."

President Dunlap asked if the small spots appearing on surface of Jonathan apples is same as bitter rot; Dr. Burrill said not, and in answer to another question said bitter rot spores will not germinate in cold storage.

Dr. Burrill talked of the disease, leaving to Prof. Blair the subject of methods of fighting the disease. The latter told of some of the work of the past season, which has demonstrated several points: First, Bordeaux mixture, when properly made and applied, will protect against bitter rot; second, winter spraying for this disease is not needed; third, early spraying is likewise unnecessary, as the disease does not begin work until late in season; fourth, Bordeaux mixture is a better preparation than ammoniacal copper carbonate.

"From our experience with this disease," said Prof. Blair, "we would recommend thorough cleanliness in the orchard; practice thorough culture and remove all fallen fruit and leaves; remove all the withered apples from the trees and from the ground and burn them. An application of Bordeaux mixture should be made late in June, followed by others as indicated by the conditions. If the rot was in the orchard the previous season, the safest way is to keep the trees covered with the spray by applying Bordeaux mixture the first and second weeks in July and August. If the owner does not want to go to the expense of this spraying, he must watch carefully and begin work as soon as there is a sign of the disease. Then its spread can be checked in the orchard, but once the disease attacks an apple, that fruit is gone. In all your spraying do the work thoroughly, cover all the tree, but not until the liquid runs off; it will remain on better if a mist covers every spot. For late spraying for bitter rot, when Bordeaux mixture would discolor the fruit, use the ammoniacal copper carbonate solution."

The making of Bordeaux mixture was discussed. The best plan is to take two half barrels; in each put 25 gallons of water; suspend five pounds of copper sulphate in one, allowing it to dissolve; take part of the water from the other half-barrel and with it slake five pounds of fresh stone lime and when it is slaked, put in the barrel from which the water was taken. Now you have two half-barrels, one containing 25 gallons of water and five pounds of copper sulphate, the other 25 gallons of water and five pounds of lime. Into the spray barrel pour these solutions at the same time, thus mixing thoroughly. If they are not poured in together, Mr. Baxter would pour copper solution into the lime, else the mixture will curdle and be worthless.

In connection with the discussion of spraying, Mr. Winn exhibited a paper band which he had removed from his trees. These bands are about four inches wide and are cut from a roll of building paper. Shortly after blossoming time they are placed around the tree, to afford a hiding place in which the codling moth can change from the larvae to the pupa state. This hiding place gets a lot of them in one place, when they are easily destroyed. Great numbers can be killed, and the birds find that the worms are in hiding beneath the bands, and they get them. The band exhibited was perforated in many places where the birds had caught the worms. This plan was commended by a number of persons, including Profs. Staubenrauch and Lloyd as being a help to the spraying of the trees.

Arthur Bryant of Princeton had a good paper on "Plums." He would not plant Japanese in Northern Illinois, although they do well elsewhere; would plant American sorts closer than others; believes in thorough cultivation, and says thinning the fruit is one of the best plans to fight the rot.

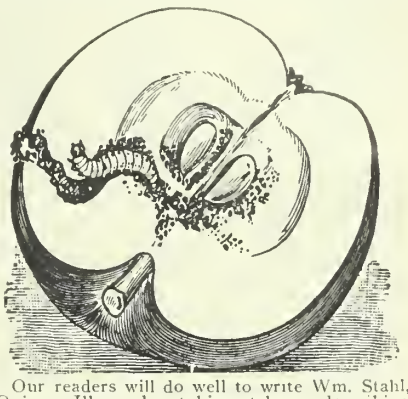
Mr. Riehl would not plant any of the European plums, although many did well the past season, on account of the dryness of atmosphere. Mr. Baxter had planted Europeans and sprays with Bordeaux to prevent rot; in seasons when rot is bad he thins the fruit also.

"Cowpeas in the Orchard" was a splendid paper by A. P. Darby of Ramsey, which we hope to print in full before the time to plant cow peas. This paper and the discussion will be of interest, but will not appear until later in the season, when our columns are not so crowded. We hope all our readers will watch for it, for it was one of the features of the convention.

The representative of the Western Fruit-Grower was not able to attend the opening session, nor the last one; our report is therefore short to this extent. But we have stenographic reports of Roland Morrill's talk on "Peach Culture," which was a feature of the first evening's program, and this will appear in full in our February issue. It is one of the best trings we have ever read on the subject. There was much interest on the part of everyone present; a visit was paid to the different departments of the University; the exhibit of spraying appliances and implements for orchard use was interesting, and the meeting was a success in every way. Illinois has a good society, and we hope to meet with the members often.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contain much valuable information, and may be had for the asking.

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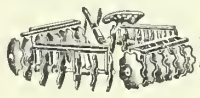

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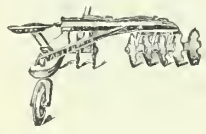

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GRAPES

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Peach and Apple Trees—Good assortment. Also full line of general nursery stock. Plattsburg Nurseries, Plattsburg, Mo.

IOWA GROWERS' MEETING

Thirty-Sixth Convention Fully Up to the Standard

THE Thirty-sixth Annual Convention of the Iowa State Horticultural Society was held in the horticultural rooms of the Capitol at Des Moines on the 10th, 11th and 12th of December. Delegates were present from all parts of the state, also delegates and visitors from South Dakota, Wisconsin, Kansas, Nebraska and Missouri, all of whom were heartily welcomed and invited to take part in the meeting. Colonel Brackett of the Pomological Department, Washington, was also present at several sessions and was warmly greeted by his many friends. Iowa fruit growers were well represented by nearly 500 plates of fruit, mostly apples, with a few plates each of peaches, pears and crab-apples. Also some remarkable fine potatoes. The exceedingly fine exhibit of apples sent by the Missouri State Horticultural society attracted much attention. After being shown on the tables in the corridor, a pyramid of "big red apples" was formed in the audience room, and every recess found a cluster of people admiring the Missouri exhibit.

The meeting was an enthusiastic one, and fully up to the standard of previous years. The meeting was called to order by President M. J. Wragg, and after invocation by Rev. F. F. Van Horn of Des Moines, the president delivered his address to the society. Mr. Wragg took a decided stand in favor of adequate representation at the St. Louis Exposition, declaring Iowa could not afford to lose the high position she occupied at Chicago, New Orleans and Omaha. He said: "The horticultural products of Iowa are recognized not only in our own markets but in the markets of the world and in competitive exhibits she has always been creditably rated among the first to receive the highest awards of praise. Our state horticultural schools stand second to none and Iowa points with pride and pleasure to the many who have gone from our horticultural institutions to hold prominent positions in our sister states, as well as the Agricultural and Horticultural Departments at Washington."

He also urges the board of directors to reinstate the premium list which was offered for production of new fruits, and urges that cold storage fruits be given an equal chance with others. He recommended an increase in fund set aside for exhibition at state fair; also that funds be set aside for the purpose of making a start toward an extensive collection of fruit to be preserved in jars. Also for an increase in secretary's salary. He believes horticulture presents good opportunities for those who will devote their energy and intelligence to this calling in Iowa.

In Secretary Green's report, which was next on the program, the writer suggested that the society take a stand for a Deparement of Horticulture in Iowa. He wants a department that will include forestry, floriculture, fruit growing, market gardening, etc. Regarding fruit crop the past season he stated that nearly every kind of fruit, but peaches, had fallen short. The same was true of the reports from the various districts in the state. These reports, made by the directors were full of valuable information to the society.

B. F. Lewis of Hamilton presented a paper on "Varieties of Fruit," in which he mentioned many common varieties of fruit, as found by actual experience to be best for his locality.

In the discussion following Northwestern Greening was very favorably spoken of and the general opinion was that this variety was hardy, fair bearer as it got older, medium early bearer, and fruit of good quality.

"Systematic Prevention of Apple Disease," by Prof. H. E. Summers, state entomologist, spoke of the necessity for watchful care in our orchards before disease and insects had infested all of our trees. He stated that a large percent of the apple crop was lost in Iowa from preventable diseases and insects. New districts show few of either, but as orchards become older we find insects and diseases are fast increasing and work must be done to prevent further depredations. We should look on the preventive measures as insurance; it is not best to wait till disease gets in full sway, when our efforts are liable to be only partially successful. We should find out what diseases are liable to attack and adopt means for prevention. Begin with getting good trees, and examine carefully for disease. San Jose scale is worst insect we have to dread and unless very numerous indeed will pass even a critical eye unnoticed. For prevention of borers he advises use of hydraulic and Portland cement mixed with skim milk till of consistency of whitewash, to which add crude carbolic acid. Use this as a wash for trees. Take soil from around base of trees and apply from root to branch. It is necessary, however, that trees shall be examined and those borers already in the trees be removed. Careful, clean culture will prevent the buffalo tree hopper, which lives at first on some low form of vegetation, mostly weeds. This insect does more harm to young orchards in Iowa than any other. Grasshoppers are also prevented by clean cultivation, but will come from greater distances than buffalo hopper and needs that clean cultivation be much more extensive. Prof. Summers gave formulas for spray mixtures and times to use the same. Of the two broods of codling moth in Iowa it is not much use spraying for second brood. This brood covers some length of time and at this season the fruit is turned down with calyx not exposed, where most of the harm is done. By spraying for first brood the second is largely destroyed. He advised that all windfalls be taken up and where apples are stored we should take some means to prevent the moths from getting out. Mosquito netting over windows will help very materially and the moths soon dry up and die. Use of paper or screen around trunk would result in forcing borer beetle to go higher in the tree to lay its eggs. On trap lantern subject, Prof. Summers said they would absolutely be of no use in destroying codling moth, but will do harm by killing the parasite that preys upon the moth. Only an expert who has been carefully taught can identify the codling moth from a large number that nearly resemble it.

"Testing Fruits," was title of a paper by E. E. Brown of Onslow in which writer gave his opinion that the success of past few years gave much encouragement. He would advise letting novelties and new high-priced varieties of fruit severely alone, letting those experiment who have time and a love for that special work. Do not plant all the new varieties but consult state reports, and in choosing varieties, quality should be taken into consideration as well as productiveness and hardiness. It is best to deal direct with nearest nursery or those of undoubted reliability. There has been a great demand for cheaper trees until price is below that at which good stock can be expected. Pay the grower enough to enable him to give the tree careful attention, the few cents difference in cost of each tree will not amount to much. Use care not to expose roots beyond what is absolutely necessary.

Mr. Brown thinks too much stress is laid on the slope of land for orchards. "We have trees growing on all slopes," he said; "on hills and in dales, but would prefer high land, or rather, the orchard should not have higher land around it. Pruning is often overdone. Low heading, protection of body from sun and borers, careful cultivating and spraying will bring good results."

Mr Town of Canby, Iowa, has successfully used axle grease on trees as preventive to rabbit depredation, but this practice is not very liberally endorsed by members present. Only small amount can be used. Three-year-old trees not needing piece larger than a pea on whole body of tree.

Prof. H. C. Price of Ames, on "Cold Storage," endorsed use of storage and thought subject should be generally discussed. We want the producer to store his own product and thereby reap many advantages. Usually the producer should have 800 to 1000 barrels of apples to pay him to store, but must be governed by conditions. Large profit is realized by storing fruit, from $1 to $2.50 per barrel, and it is said that if 50 cents increase is gained it will pay the individual to store his apples. At present ice storage is most practical for fruit-grower. If this pays, one can put in mechanical storage later. Prof. Price gave plans for houses with necessary dead air spaces, etc. Discussion brought out the fact that the Wealthy apple is one of the best in the state for storage.

In a paper on "Why We Should Grow Our Own Trees," Mr. J. Saxton of Ames laid great stress on relative hardiness of root and top. Thinks only trees that should be purchased by the Iowa grower are those grown in the Northwest.

Mr. Wilson said he thought there was some misapprehension concerning way nursery stock is handled. "We now have superior facilities and trees can be safely shipped to all parts of the

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SILAS WILSON

ATLANTIC, IOWA

country. Nurserymen are up to date in this regard, and know what is needed for long shipping. They know that nursery stock is composed of living plants, and they handle accordingly. Stock is not necessarily injured by long transit. It all depends upon being done right.

Should trees be received in bad condition from any cause, and if they have dried out some, they can be revived by burying in loose, moist earth, and the nearer a complete burial the quicker they will take up the moisture.

President Wragg: "Scions that have become dried come to normal condition if buried in moist sand or soil; also some kind of plants."

"Success with Apples," by O. H. Barnhill of Shenandoah was an interesting and enjoyable paper. The speaker thinks fruit growers expect too much of the apple orchards. If they don't live thirty or forty years and bear good crops of fine apples every year they are liable to take as a fact that fruit growing does not pay. It is of great importance in planting of suitable varieties. He would plant more winter and fewer summer and fall varieties; also choose hardy and productive varieties. Care all along the line of planting and caring for trees and fruit is necessary, and because there are thousands of dead and dying trees in Iowa, we need not conclude that it is impossible to raise apples if proper attention is given.

Prof. Emerson of Nebraska takes issue with idea that fruit trees will grow only where timber originally grew. All over the state of Nebraska, out as far as the sandhills, trees are growing where planted years ago.

Considering questions of irrigating, some found that no amount of water will do in certain seasons. The one just past is notable in this respect. Berries and vegetables kept moist all the time did nothing. Hot winds were largely responsible for this.

"Local Horticultural Societies," by W. A. Burnap, Clear Lake, gave work of the district societies, four in number. He was uncertain if farther division would not do more harm than good. If local society can be conducted so as to supplement state society, it would be a benefit. Those who meet oftenest in neighborly friendly way do most good as a rule. He would advise that non-attendance for certain number of meetings would forfeit membership. Would have each member required to bring something he has grown in orchard, field or garden and these would become the basis for informal talks. With fruits displayed, dinner, and discussions, the time might be most profitably spent. Membership fee should be one dollar, and funds used to pay way of one or more delegates to state meeting.

Mr. Lathman, secretary of Minnesota state society, stated they had a membership of over one thousand members. They made no effort to organize local societies, although those now in existence required membership fee of one dollar. The secretary of local society could send the names of members and one-fourth of the membership fee, and they were enrolled as members of state society and recognized as full members in every way.

Silas Wilson, who attended Missouri State Horticultural Society as delegate from Iowa, made a splendid report of his visit. He stated the collection of fruit was the most beautiful he had seen for many years. He praised the fine collection of seedlings of fine quality and great promise. He was impressed with the cordial hospitality he met while there.

Dr. Powell, as delegate to the Minnesota State Society, reported an excellent meeting there and especially commends the part taken in the work by the ladies of that state.

"Tomato Culture," by E. E. Little, of Ames, gave history, best methods of cultivation and best varieties of this favorite vegetable. Names "Best of All" as one of the best family varieties, with a number of others nearly as good.

"Gardens," by Dr. F. M. Powell of Glenwood, was handled in a masterly manner. The speaker supported the theory of the introduction of school gardens into the child's curriculum, and believes they can be made a strong factor in the symmetrical development of the child, for educative and refining influences and as an avenue for occupation. He thinks kindergartens could devote more time to nature studies with good results. There is an awakening on the subject of introducing school gardens into the United States, and many places in the East have taken up this idea with good results. He believes this system will some day be in general use in this country. Gardening is good for the older ones, as well as for the children. The old gardens of our grandmother's time will always be one of the best memories. Those who worked in these old-fashioned gardens were of noble, loving character.

"Horticulture and the State College," by Prof. Price, "Phenological Notes for 1901," by Miss Charlotte M. King, Ames, and "Fruits and Vegetables," by Miss Sabin, professor of domestic economy at Ames, were highly interesting papers. "The Ideal School of Horticulture," by A. E. Parsons, Creston, was a plea for closer relation between home and school life than is now had. He would see that the physical activities are given more attention. The ideal school will be the rural school. When the country will pay the price, she can have advantages that city schools cannot get at any price. The ideal school will have less teaching from books and more from things; manual training on broad and comprehensive lines. Health will receive much consideration, and pupils will be taught to eat fruit in place of pills; drink cider and grape juice in place of Milwaukee beer.

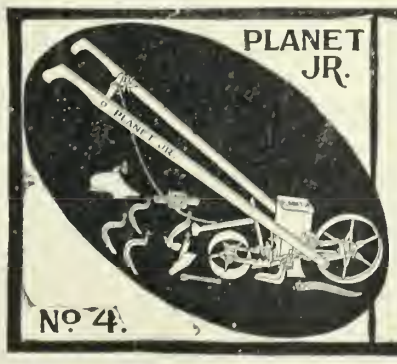
President Beardshear of Iowa State College addressed the society on the subject of "The Educational Effects of the Beautiful in Horticulture," in a most delightful manner and was heartily applauded. He said that the beautiful was fundamental to the truest and highest education, and paid tribute to all lines or rural work.

"Horticulture and Education," by G. H. Van Houten was along the line of nature study and object lessons from simple things around us. Education is not wisdom, and it is of no use to teach unless we have the wisdom to apply, and nothing will so well develop this application as an object lesson. There is a feeling of stability in horticulture. It takes time to grow trees and when once producing, one is not apt to leave them. Success is now guaranteed to those who pursue this vocation with determination. The ennobling influences should be an encouragement even to those who have not made much money. It excites us to nobler aspirations, causing us to dislike the low and mean and reach out to the great and lovely things in nature.

F. W. Taylor of St. Louis talked on St. Louis Exposition short time..

Prof. Pammel of Ames gave an interesting address, with aid of stereopticon views, on the wild flowers of the state.

In "Theory and Practice of Horticulture," by S. H. Linton, Des Mones, the writer said that every phase of horticulture can bear practical analysis. He warns the Iowa grower from taking up every thing advanced by irresponsible people. He believes that the one who puts his heart into the work of



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horticulture will make a success of same.

"Trees for Timber and Windbreak" was ably presented by P. F. Kinne of Storm Lake, which brought out general discussion of best trees for various parts of state.

"Leaf Study," by Prof. Erwin of Ames, was a careful study of the functions of the leaf and its relation to plant growth. Plants generally depend on leaves for growth. He stated the best fruit land was not the richest land, by any means, and as an instance named the Ozark soil, where the growth of fruit buds was so abundant. Gave scientific explanation of work of leaves relative to different plants.

One of the best practical subjects was "How to Replace Our Vineyards," by Silas Wilson, of Atlantic, who first showed the success of our vineyards in past years and then gave careful and plain direction for planting and handling for successful results, urged the growing and then the marketing our grapes in attractive packages. Best five varieties: Concord, Worden, Moore's Diamond, Green Mountain and McPike. The last is the best Mr. Wilson has ever grown. Red varieties: Agawam, Wyoming and Woodruff Red. White: Moore's Diamond, Green Mountain and Pocklington.

"Edible Fungi," by Miss Marion Ames; "Vegetables as Food," by Miss Knight, Ames, and "Conifers of Iowa," by Miss Paddock, Ames, were all highly interesting and enjoyable.

"Seasonable Notes," by J. R. Sage, Des Moines, gave many facts recorded the past summer, relating to the heat, high winds and drouth effects. It will become a matter of history and events of past season not liable to occur for many years.

W. H. Barnes of Topeka, Kan., gave an address on "Horticultural Progress of a Century," giving a history of the great development along these lines, and showing that the greatest improvement has been made in recent years.

"Forestry and Orcharding" was a valuable paper by W. M. Bomberger of Harlan, whose observations led him to believe that evergreens were a positive help to the orchard in his part of Iowa. Rows of apple trees planted by side of rows of evergreens show marked degree of superior perfection to those in orchard under same conditions otherwise. Fruit is more free from blemishes and fine as raised in Ozarks or Southern Illinois.

Mr. Graham gave varieties of peaches he had found best for Iowa, which subject was generally discussed.

N. K. Fluke of Davenport, presented the subject of pecan growing in Iowa, and showed that this is possible and advises the planting for ornamental purposes.

Many subjects were discussed and very many points of interest brought out that we are compelled to omit.

All the officers were re-elected, each by unanimous vote of society. The legislative committee consists of Messrs. Eugene Secor, Forest City, Silas Wilson, Atlantic; W. M. Bomberger, Harlan, C. L. Watrous, Des Moines and Prof. Summers, Ames, who will include in their work a bill creating a Department of Horticulture and the enactment of laws relating to inspection of nursery stock.

Southwestern Iowa Meeting

The Twenty-seventh Annual Meeting of the Southwestern Iowa Horticultural Society was held at Red Oak, Dec. 17, 18, 19, 1901. The weather was very cold and stormy and the local attendance small. The usual number of members from a distance were in attendance and the meeting very enthusiastic and successful.

The officers elected for 1902 are as follows: President, J. H. M. Edwards, Logan; vice president, A. F. Collman, Corning; secretary, W. M. Bomberger, Harlan; treasurer, O. H. Barnhill, Shenandoah.

The fruit display was large and fine. J. W. Murphy, J. P. Jackson and J. F. Record showed 270 plates of Mills county's famous apples. B. Stuart and A. L. Plummer brought 175 plates of apples down from Polk county. The first premium in county display was awarded to Mr. Murphy, who is acknowledged the best fruit exhibitor in Iowa, having the best exhibits at the Chicago World's Fair and Omaha Trans-Mississippi Exposition. The second premium on county display was awarded to Mr. Stuart, who also had a fine display of canned fruit, preserved in equal parts of formaldehyde and alcohol. Mr. Jackson won first premium on individual display and Mr. Record second. First on seedling, Mr. Record; second, Mr. Stuart. A vegetable display of thirty plates was also shown by Mr. Murphy.

Plate premiums were awarded to the following varieties, which are the principal ones grown in this district. Duchess, Red June, Benoni, Maiden Blush, Fall Winesap, Wealthy, Snow, Lowell, Utter's Red, Sheriff, Minkler, Romanstem, Missouri Pippin, York Imperial, Jonathan, Janet, Mammoth Black Twig, Grimes' Golden, Ben Davis.

Tuesday afternoon the society met in joint session with the ladies of the Village Improvement Society of Red Oak. Mrs. B. B. Clark read a paper explaining the work of the society, which consists in encouraging and aiding the beautifying of public and private grounds, cleaning up streets and alleys and forming and maintaining parks. The society has bought and improved a park for the city and a little ornamental square near the depot. The ladies of Harlan, Atlantic and other near by towns expect to form similar societies in the near future.

Short speeches along the line of work of the society were made by Wesley Greene of Des Moines, J. M. Bechtel of Burlington, W. M. Bomberger of Harlan, A. F. Collman of Corning, R. D. McGeehan and Silas Wilson of Atlantic, Prof. H. C. Price and Prof. A. T. Erwin of Ames.

Mrs. Geo. W. Palmer presided at the meeting. Mrs. F. J. Brodby sang a solo and Misses Madge Fisher and Valencia Kretchmer furnished instrumental music. After the program an informal reception was held and refreshments served.

Wednesday afternoon the pupils of the Red Oak High School visited the convention and were addressed by Prof. Price on "Horticultural Education." All who love plant life were advised to study horticulture. This is a wide and constantly broadening field, while the professions are overcrowded. Attention was called to the refining and uplifting influence of our profession. A drinking horticulturist is seldom found and few even use tobacco.

Southwestern Iowa is one of the greatest apple countries in the world and orcharding naturally came in for a large share of the discussions, commercial orcharding especially. Winter apples were an unusually good crop in Mills county this year, 160 carloads having been shipped from Glenwood, which is in the center of the apple district. Five thousand barrels are now in cold storage at Malvern.

A peculiar feature of the apple situation in Southwestern Iowa is that the price of apples has about doubled since the shipping season. The bulk of the fruit brought only $2.25 to $2.85 per barrel and it seems not unlikely that some of the same apples may be shipped back from Chicago. One grower held 300 bushels of Jonathans three weeks and was then offered $5 per barrel for them. Up in Harrison county Mr. Edwards sold Jonathan for $1.25 per bushel f. o. b. the cars at Logan. The local dealers only offered $1.

W. J. Davenport of Council Bluffs, bought a carload of blood fertilizer from South Omaha and applied it to the ground underneath his young apple trees near Glenwood. The effect was noticeable in the fruit and he thinks it paid. The fertilizer cost $20 per ton, but one quart is considered enough or three trees.

Ben Davis was generally conceded to be the most profitable variety, though Jonathan was accorded second place. Grimes' Golden and Winesap were also highly recommended. Mr. Wilson, Mr. Bomberger and Mr. Rugsley that it would pay to top work Jonathan on Gros Pomier, which combination has proven very profitable in Captain Bacon's large orchard in Harrison county.

B. Stuart read a paper on "Sweet Apples" in which he recommended Sweet June, Ramsdel Sweet, Bailey Sweet and Winter Sweet Paradise.

The value of clean cultivation was strongly emphasized, though admitted to be impracticable on hillsides on account of soil washing. Seeding to clover was recommended, but plowing up the ground every three or four years was advised, as blue-grass would otherwise come in and form a sod. The clover should be mown three or four times every season and left on the ground. Making a stock pasture out of the orchard was strongly condemned.

Gophers were admitted to be a scri-

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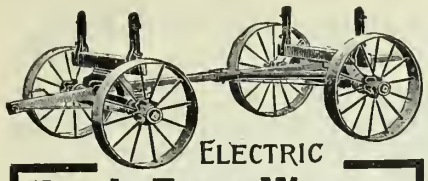

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J. F. ROSENFIELD, West Point, Neb.

ous pest in the uncultivated orchard. E. Kretchmer said he rid a field of large numbers by putting bi-sulphide of carbon in their holes. Mr. Murphy said he had kept seventy-five acres of orchards in clover free from them for six years by trapping.

The Acme harrow, Clark's cutaway disk and Planet, Jr., horse hoe were recommended for orchard cultivation.

Cover crops were discussed and endorsed. Prof. Price recommended oats sown in August. Mr. Barnhill said he had twice sown oats in the orchard in August and neither time did it make growth enough to cover the ground. He preferred rye, because it kept on growing later in the fall, though oats has the advantage of not growing in the spring.

E. B. Gay of Griswold cultivated his orchard until the middle of July and then drilled Whippoorwill cow peas. A two-horse planter was used, and every alternate row being straddled, making the rows of peas about twenty-one inches apart. The peas made an immense growth in spite of the drouth attaining a height of two feet and completely covering the ground.

Papers on spraying were read by F. P. Spencer and J. P. Jackson. The latter has been spraying for ten years and is considered the best authority on the subject in this section. The orchards under his care were sprayed only twice the past season, owing to lack of help, the first time May 7th and 8th, the second time ten days later. The apples appeared to be free from worms until July 20, but after that they became infested and by picking time were quite wormy. Mr. Jackson thinks it will pay to spray later than is usually done, especially in seasons like the past one. Early apples are comparatively free from worms which seemed to be more numerous in the later varieties.

Mr. Barnhill said that the presence of worms in sprayed apples was in many cases due to later broods of codling moths. Spraying in midsummer had been recommended, but this was hardly practicable on account of the size of the fruit and interference of the foliage. Keeping the windfalls all cleaned up and destroyed was a good plan. Another good idea is to screen the windows of cellars and other places where apples were kept and thus prevent codling moths from escaping and doing further damage.

Mr. Bechtel led a discussion on picking, packing and marketing apples. He said he had had best success selling apples in piles in the orchard. Buyers import packers because they cannot trust growers to do the work properly, but growers might save this expense if they would. Manufactured goods are stamped with the producer's trade mark and apples should be marked in the same way. Boxes are better than barrels for handling apples, for in them the fruit keeps better, sells better and is easier handled.

The unprecedented crop of peaches harvested in this section the past season led to quite a discussion of this luscious fruit. Samuel Holmes, of Hamburg, sold 2,300 bushels the past season. He estimates that there are twenty peach orchards in Fremont County that bore an average of 1,000 bushels each the past season, three-fourths of them being within six miles of Hamburg. Many large orchards have been planted on bluff lands that were considered almost worthless for other purposes. As to the stability of the industry, there were trees ten and twelve years old that had borne four and five heavy crops and were still in good good condition. Mr. Holmes thinks we have the advantage over other peach districts in being closer to markets, which not only makes shipping expenses less, but permits leaving the fruit on the tree until fully ripe.

L. O. Williams of Kearney, Neb., sent a paper on "Varieties of Peaches" in which he endorsed the list recommended by J. M. Russell, which is as follows: Alexander, Hale's Early, Early Rivers, Coolidge, Champion, Hill's Chili, Wager, Elberta, Crosby, Wright, Russell's No. 1 and No. 3.

E. V. Wright of Hamburg, also sent a paper on peaches, of which he sold 1,500 bushels the past season.

J. B. Laughlin, of College Springs, strongly recommended the Greensboro, which he said was earlier than the Alexander and better in every way. Sneed and Triumph were also highly spoken of.

Prof. Erwin told of Missouri experiments to lessen the danger from late frosts by spraying the trees with white wash three or four times during the winter. The theory is that white reflects heat and that the blooming period will be deferred until there is less danger from spring frosts. Buds were held back three to six days by this method, which had been very successful in some instances, but had not yet been thoroughly tested. Leaf curl is very bad in Central Missouri. Blue stone, copper sulphate and lime makes a spraying solution that was found effective in checking this disease. Prof. Erwin strongly condemned the indiscriminate planting of seedling peaches. In the larger peach growing districts the later varieties are mostly grown, the early ones having generally proven a losing investment.

J. P. Hess, of Council Bluffs, contributed a paper on the present condition of grape-growing in Southwestern Iowa. The Council Bluffs Grape Growers' Shipping Association shipped 102 car loads of grapes in 1897, 50 in '98, 8 in '99, 20 in 1900 and 37 in 1901. These figures plainly show the effects of the hard winter and how the vineyards are gradually recovering. Those on south and southeast slopes were least injured.

A. B. Elliott, of Red Oak, sold 10,000 pounds of Moore's Early grapes from one and one-half acres for three and one-half cents per pound in the local market.

Mr. Wilson spoke on "The Enlargement of Good Will Between Planters and Nurserymen." Ill will, he said, was generally caused by misunderstandings and misconception of motives, which are a fruitful source of litigation. Most men are honest, including nurserymen. Both the planter and nurseryman should be thoroughly fair with each other. Most difficulties can be settled satisfactorily if approached in a proper spirit on both sides. Representatives of reliable nurseries are doing much good by inducing people to plant trees and vines, but irresponsible agents, dealers and brokers are doing great injury to the cause of horticulture.

O. H. Barnhill read a paper on "The Press and Pen in the Work." He urged a wider reading of fruit and farm papers and especially recommended the Western Fruit-Grower and the Fruitman. The annual reports of our societies should be more widely read. We should take more pains in writing papers for meetings and contribute more to the press.

"What Constitutes a Perfect Strawberry" was the subject of a paper read by Mr. McGechon, who is considered Iowa's leading authority on the strawberry. He considers the Sample the best variety he has tested, but it is a pistillate.

H. A. Terry of Crescent sent a paper on "What Constitutes a Perfect Plum." Mr. Terry has originated many valuable seedlings of the Americana and Chickasaw type. Mr. Bomberger said he had a number of farmers raising seedling plums for him and considers this the most practicable way of originating new varieties. Mr. Tery sold $200 worth of plums from a row of trees thirty rods long.

A discussion on commercial cherry growing was opened by Henry Field of Shenandoah, who said he had found the English Morello the most profitable variety. The trees commence to bear when four years old and bear regularly for a dozen years. An orchard of 500 trees set in 1892 has proven the most profitable of any fruit he has grown. Most of the fruit is shipped to St. Louis, St. Paul and Kansas City. Omaha is a very poor cherry market and Sioux City little better. Two thousand baskets were shipped this year, the net price received being 27 cents per basket. St. Louis prefers the fruit in 20-pound baskets and will pay a premium to get them in this shape. The ordinary baskets hold eight pounds, or one-sixth bushel. Another orchard of 500 Morello trees has been planted twelve feet apart each way. Montmorency cherries have been found unprofitable. They are good quality, but shy bearers, cost more for picking and ripen so unevenly that the birds get most of them.

Mr. Wilson ships Morello cherries to small towns in Iowa north of the cherry belt and always has more orders than he can fill at $2.50 to $3.00 per bushel; 3,750 young trees just beginning to bear were killed by the hard winter of three years ago. They were given clean culture. Mr. Wilson believes in planting cherry trees six to ten inches deeper than they stood in the nursery.

J. B. Laughlin said he had tried that and they sprouted badly. Mr. Bomberger said he had cherries from June 15 until September and that for the ground they occupied they brought him more money than any other crop.

G. Miller of Anita has been experimenting with the wild cherry as a grafting stock. In the spring of '99 4,000 cherry and plum cions were grafted on our native black cherry. None but the foreign varieties of plums grew, and they made a very poor growth during the first season. Their development during the second season, however, was simply marvelous. Their roots ran so deep that it was almost impossible to dig them up. A number were transplanted and they went through the severe drouth last summer in better shape than any other tree on the place, apple or plum.

"Bees in Horticulture" was discussed by E. Kretchmer and others. Mr. Kretchmer said that the work of pollination done by bees was not so great in the case of the strawberry as with other fruits, on account of the heaviness of the pollen. Grapes were dipped in honey and the bees came and licked off the honey, but did not puncture the grapes, because physically unable to do so.

G. H. Fritch of Emerson told how he practiced intensive cultivation. Ground for strawberries was plowed deep in the fall, heavily manured and worked in the spring until very fine; 3,000 quarts of berries were grown on a little less than a half acre.

Letters were read from M. J. Wragg of Des Moines and F. W. Taylor, the latter representing the Louisiana Purchase Exposition. Our state society has recommended Silas Wilson for superintendent of Iowa's fruit exhibit at St. Louis.

Space forbids a review of the directors' reports and the following papers: "Top-Working," M. Pugsley; "Fall Flowers," W. Greene; "Wastes in Farm Orchards," A. F. Collman; "Notes on Apple Crop of 1901," C. H. Deur; "Notes on Experiments," G. Miller; "This Season's Work in the Young Orchard," D. B. McCalla; "Turning to Account Odds and Ends on a Fruit Farm," J. H. M. Edwards; "Aesthetics of Horticulture," H. F. McIntosh of Omaha.

O. H. BARNHILL.

Shenandoah, Ia.

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The Pennock Hybrid Cherry

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Awarded gold and silver medals at the Pan-American. Large list of Grape Vines and Small Fruit Plants. Catalogue Free.

Ohio Horticultural Society Meeting

The thirty-fifth annual meeting was held at Lancaster December 4, 5 and 6, 1901.

The exhibits were good, especially of flowers, some chrysanthemums and carnations being extra fine.

The state is divided into districts and a committeeman appointed for each distract to make observation and take notes during the year and report such matters as will be of interest and value to the society. From these reports we take the following points:

Prices were good throughout the state for all fruits and vegetables except peaches. One man reported fine Elberta and Smock peaches as selling in his district for $1.50 to $2.00 per bushel, while another committeeman reported them as selling in his district for 50 cents to 75 cents per bushel, and many went to waste for want of a market.

Every committeeman reported the Keiffer pear as doing well in his locality and bringing good prices. As to varieties of strawberries, but few make recommendations, knowing that even in their own district it is a local question.

Triumph peach rotted badly. Greensboro was best of its season. In plums Grand Duke and Monarch seemed most profitable.

One committeeman reported that by giving good cultivation to his orchard from early in the spring till middle of July and then drilling in cow peas two feet apart and cultivating twice he had enriched his soil and caused his trees to become annual bearers. Another sowed the peas as early as middle of June and cultivated; let them lie on ground till spring, then disked them in and found his land much improved, and this in the extreme northern part of the state. If he wished to plow under the peas in the fall he ran the disk harrow through them in the direction he wished to plow. This straightened out the vines to some extent and cut off side branches; then by putting a chain on plow beam could plow them under fairly well. By plowing in the fall, turning under rotten apples and leaves, it was thought that the spores of scab fungus and rot were to some extent destroyed.

In most districts, on account of scarcity of labor, plantings of strawberries and other small fruits had been cut down last spring.

The Haymaker raspberry, Early Harvest and Early King blackberries were reported as doing well.

This year from the county of Athens 200,000 bushels of peaches were shipped. From remarks heard at Ohio State Fair it was thought that Lombard and Burbank plum trees had been more largely distributed over the state by tree agents than other varieties.

President Miller, in his address, recomended taking steps at once to make a good showing at Louisiana Purchase Exposition, and before the meeting closed Prof. F. W. Taylor, in behalf of the St. Louis World's Fair board, gave us an account of the steps that are being taken to make this exposition a star of the first magnitude, and the society pledged themselves to do their part to have Ohio well represented.

A short but interesting talk was given on birds. There are about 230 species of birds that nest with us during the summer season. They are man's best friend and benefactor. Without birds man would be driven from the earth. Among those that are most beneficial is the crow family. He is a sly, mischievous dog, but very intelligent and a great scavenger and worm destroyer. He does much meanness, but more good to compensate for it than any other fellow. The blackbird family is a great insect destroyer. The Blue Jay is a Spaniard among birds; he has no redeeming qualities except his color. He is a great destroyer of the nests of other birds. The King bird (Bee bird), while he may take a few bees, is very helpful. The swallow family, to which the whippoorwill belongs, is beneficial. The robin is often charged by the fruit-grower as being a thief and doing much damage, but it also said that a young robin will eat thirteen feet of angling worms in a day and as all meat does not make a good diet, do not begrudge him a cherry to mix in.

The Baltimore oriole, while being a sweet singer, is also bold and will defend his nest and family with his dying breath. The best that can be said of the English sparrow is that he is like everything else English—wants the earth.

The dove does no harm, emblem of peace and purity, and yet our late legislature took it from the protected list and this fall hundreds of these beautiful birds have been killed. The man who would kill a dove—you could hear his soul rattle in a tobacco seed.

The quail works for us, is our best friend, an ornament to our homes and fields, and they must be protected. You might as well talk of the angels and satan compromising on sin as compromising with the gun clubs; there is no neutral ground. The bird-dog must be outlawed. The young bird-dog that is permitted to roam the fields during the summer destroys more birds in the nest than the hunter kills during the hunting season.

Prohibit the sale of Flobert rifles and toy guns to boys; with these weapons a great many birds are mangled, crippled and killed.

In the discussion of amateur flower growing much stress was placed on massing to produce effect, rather than having the flowers scattered over the lawn and also have mostly one kind. For this purpose salvia and the Crimson Rambler rose were recommended. One gentleman said that he had never noticed flowers much till this year, when his daughter had made a flower bed at one side of the yard with about seventy-five feet of grass lawn in front of it clear of obstructions to the view. The front of the bed, 6x12 feet, was nasturtiums; the next, 6x12, was salvia, and the back, 6x12, was cannas. People passing along the road would stop and admire that flower bed and now there was a prospect of his being deprived of this daughter on account of a young Lochivar, but he did not intend to do without that flower bed.

In the discussion of timber trees of Ohio and the demand for wood, the Western Catalpa was recommend for planting. A member reported his farm as yielding $40 gross per acre per annum and such land we could not afford to plant to trees, but there was much rough land in Ohio not adapted to cultivation which the state should exempt from taxation when planted to trees. A farm in New England was spoken of which was let grow to timber and cut off every twenty years, yielding $60 per acre or $3 annually.

At the Boys' Industrial Home (State Reform Farm), located at this place, we noticed something that may be of practical benefit to your readers. The sewerage is conducted to some low land and divided by smaller pipes running into beds of sand three to six feet deep. Some of these beds are used for growing crops during the early season, being a system of irrigation, but the sand in all the beds is cleaned out some time during the year and hauled to the gardens.

It is reported that quite a few trees in the older apple orchards are dying from trunk or crown disease. The cause is not definitely known, but it is thought that freezing may have something to do with it and mulching during the winter season is recommended. The King apple tree is said to be most subject to this disease and Grime's Golden and Baldwin in some places almost as bad.

Grape rot in Northern Ohio was very severe last season. Some growers are so much discouraged that they are pulling out a great many vines, but from experiments conducted by Prof. Selby he seems firm in the belief that grape rot can be controlled by thorough spraying. Five sprayings were recommended.

Peach yellows is reported as being very prevalent and the ax and firebrand the means of control.

"What Varieties of Apples Shall We Plant in Central Ohio?" was discussed. The gentleman reading the paper said that he had planted 270 trees at one time, taking the advice of a nurseryman as to varieties adapted to the locality, and but 150 of the trees had proved profitable. These were Ben Davis, Rome Beauty, Grime's Golden and Stark.

In the paper on apple culture for Northeastern Ohio it was recommended for a site land, high locality with good air and soil drainage. If the soil drainage is not perfect it must be made so by tile drains. The speaker described his own methods. He believes in fall setting. Buys his trees in the nursery row, selecting and trimming while the trees are in the row; starts the head of the tree about five feet from the ground, leaving five or six lambs in a clump. The roots are cut from the under side. If the fall be dry, dip the roots before planting in a soil porridge; mound up around the tree about a foot high, the mound to be worked down inthe spring. Lean the tree towards the 2 p. m. sun; this will prevent sun scald till the tree trunk will be shaded by its own branches, by which time the tree will have assumed an upright position. Put around the tree a wire screen with the lap on the southwest side. This as a protection against mice and rabbits and the lap on that side will be an additional protection against sun scald. Last year he sprayed thoroughly with bordeaux and arsenate of lead, the last spraying on late varieties in July, and had apples this year quite free from scab and coddling moth. The Disparene sticker much better than paris green and the late spraying kills the second brood of coddling moth. Out of 190 Baldwin trees planted some years ago 180 are living and profitable trees.

In apple culture for Central Ohio the speaker agreed with the previous speaker as to selecting a site for the orchard, but not as to mode of trimming trees. Would head lower and not leave limbs in a clump, but some distance apart if possible; thinks that when limbs are left in a clump moss collects, which holds water and sooner or later the tree starts to rot at this point and splits down. With but one limb in a place there is less chance for moisture to collect. Don't trim in fall. More or less moisture evaporates from the cut surface and the limb may die back beyond the bud he wishes to grow. This speaker does not plow ground before setting or afterwards. Digs the holes in fall or winter three feet in diameter and eighteen inches deep, inverts the sod in bottom of hole and sets in spring; mulches the trees with about a ton of manure to ten trees. In the fall rakes this much away and mounds up the tree with soil as a protection against mice and rabbits. In spring rakes down mound and puts back mulch; digs about trees for five or six years and then mulches with saw dust, (rotten) manure and the grass mown from between the trees, but never plows up the sod. This mulching holds the moisture, thus preventing the apples from dropping, and what do drop we clean and sell this year for $3.25 per barrel. He believes in thorough spraying: can't have healthy trees without healthy lungs (leaves); does not believe in alternate year, but has apples, not a full crop, but a profitable crop, every year. Thinks that his way of mulching brings about the condition of the primitive forest that existed for centuries. Trims trees any time now and during winter when weather will permit and because of low heading can do three-fourths of the trimming from the ground; can pick one-half of the apples from the ground and women pick from thirty to forty bushels per day. He has an orchard, 41 years old, never been plowed; 70 trees yielded this year 1,212½ bushels of marketable apples or 17 bushels per tree. In 1896 one of these trees yielded 42 bushels merchantable apples. Stores the apples in one and a half bushel boxes in a private cold storage plant and sorts again and barrels as sold.

Prof. Green thought the San Jose scale was destroying more orchards than were being planted and there was an excellent outlook for the man who plants and takes proper care of the trees. Crude petroleum had been found more effective against the scale than whale oil soap.

Prof. Webster warned us that the 17 year locust was due to appear over the western half of Ohio this year and thought if it could be done without serious incinvenience, planting trees should be delayed for a year. A member reported that the year the locusts were so bad he had coated his young trees with a mixture of cotton seed oil and resin, and where used the locusts stuck fast and no damage was done the trees.

The committee on orchard and nursery inspection reported that owing to yellows a few peach orchards would be cut down. San Jose scale was found in several portions of the state, but there was more danger of this pest being spread by back door yard nurseries than from the large nurseries of the state and that the scale was much easier combatted in the country than in the cities, the material used being very liable to discolor fences, buildings and monuments. The scale is very liable to be carried by baskets used in handling affected fruit. Osage orange has been found as subject to scale as fruit trees and much more difficult to treat, and therefore quite a little hedge has been destroyed in Ohio.

The old officers were re-elected and the constitution amended, making the annual meeting two weeks later, giving the members an opportunity to attend the horticultural meetings, in adjoining states.

CARY W. MONTGOMERY.

Ohio.

Flower Seeds, Bulbs AND Plants.

"There are treats of every kind,
But in all the world you'll find
Naught so good as what you've grown
In a garden of your own."

Japanese Imperial or Giant Morning Glory.

- - From the Land of the Mikado. - -

THE seed of these new Mammoth Morning Glories we import direct from Japan. They are a new race, wonderful in size and beauty. Flowers often grow **six inches** across. Beside the flowers being of immense size the colors are new, beautiful, and strange. Ashy grey, bronze and red, sea green, blues bordered with red, purples marbled with black, white spotted with blue, flam'd streaked and marbled with all conceivable colors. Many of the flowers are beautifully fringed.

Pkt. 8c., 4 Pkts. for 25c.

Why not buy your . . . .

FLOWERS OF A WOMAN?

ADDRESS ALL ORDERS AND COMMUNICATIONS TO

PHEBE J. MARSHALL,

Dutchess County. HIBERNIA, NEW YORK.

After Our Friend Hale

When we published Mr. Hale's article in regard to Ben Davis apples, we knew some of its friends would come to its defense. Here are two, and we will say in this connection that we fear we will have to limit the number of replies for all our Western growers are anxious to have their "say."

Mr. Hale says when he buys Ben Davis apples on the train he eats two or three mouthfuls of this beautiful red cork and then gives the rest away to the darky boys at the next station. It seems strange that anybody who knows as much about fruit as Mr. Hale does should not know that there is as much difference between Ben Davis apples as there is between fine flour and coarse bran. Ben Davis, as they grow in some countries are not fit to eat at all. In other countries they are among the best of eating apples. His condemnation is universal. We used to stand just where Mr. Hale does in regard to this apple, but we have changed, and what made us change? The apples themselves.

We remember well the first Ben Davis apples we ever ate; that was in the north. We did just like Mr. Hale or most any other person would do—ate a few bites and threw or gave the remainder away. But how is it new? We put away in our cellar a dozen or more different kinds of apples every year and at this time of the year we eat Ben Davis in preference to any of them. We have some that Mr. Hale would call the best of eating apples. Why this change? We are not the only ones who have changed. Show me the man that has eaten many Ozark Ben Davis apples who doesn't like them, if you can. He is not to be found. Here in the Ozarks we raise apples in immense quantities, not only by the carload, but by the trainload. Orchards everywhere you look and more different kinds of apples than are grown anywhere, probably, and I have the first person yet to see who will take up a Ben Davis at this season, eat a few bites and throw the apple away.

Eat 'em? Why, we eat them like pigs when our cellars are chuck full of many kinds of apples. Every barrel of big Ben Davis apples that we send out of this country the word comes back, "The nicest I ever saw and the best I ever ate." That's what people say about our Ben Davis apples. Not a single one condemns them. "The finest I ever saw and the best I ever ate." How does that sound beside your "Big red cork?" L. S. WITMER.

Seymour, Mo., Dec., 1901.

In J. H. Hale's communication on Ben Davis apples he has some good points and some that are not good. He seems to think because it is not a good apple to eat now it has no quality. I never heard it claimed to be a good eating apple until after the first of February; that is not its place, but for pies, puddings and sauce it has no equal when properly cooked. A pie maker in Chicago, who makes 10,000 pies a day, always buys Ben Davis when he can get them. Just cook Ben Davis apple sauce three hours and it is better than Jonathan, Grimes' Golden or Baldwin but if you want a good eating apple I would never recommend a Ben Davis. It does very well to fool somebody with, because a large per cent of the consumers go entirely by the eye and not knowing the names and value of each kind. I have sold Ben Davis apples to go to Eastern cities for more money than it would cost for Baldwins laid down, for the reason that they would keep longer and are a better cooking apple.

A far better apple for eating is the little Roman Stem, but it would not sell for as much in any market on earth, unless the buyer went entirely by his taste and not on looks, as is generally the case. I know on the open market in Chicago Ben Davis sell far ahead.

The point of value as I look at the Ben Davis is, first, it will out yield any other variety for a term of years; second, it is a red apple of good size; third, it will stand rougher usage than any apple I know of in picking and packing and shipping and not show it; fourth, it is not excelled as a cooking apple anywhere; fifth, it is a fairly good keeper, good stock holding up six to eight months in cold storage; if an apple rots it dries up, where most apples are a soft rot and make a bad mess in a barrel.

Now I think these are enough to commend it. The apple that is perfect in every way has never yet been found and when it is I am ready to discard the Ben Davis and take it up. Without the Ben Davis this year we would have had very few apples. I know of six consecutive crops of Ben Davis and do not know any other variety that has as good a record. C. G. WINN.

Griggsville, Ill.

The Wealthy Apple

There is no question of the value of the Wealthy and its present popularity is merited. In Iowa, along the two southern-tier counties, the rule is it is as perishable as Duchess. In Central Iowa it keeps to Octomer 1; from Sioux City it keeps well to December; in Northern Iowa often through to January 1st. Lately storage has been investigated and it is found to store well; if packed a little green it will hold a full month and over if stored right. I had a neighbor pick nearly 200 bushels of Wealthy apples, store under dense shade trees and under hay out of doors to December 1, when he sold them for $1 per bushel, while not saleable in season of gathering at all. On passing into storage the acidity tones down and the meat gets pink tinted, the red heightens and the green turns golden and it is a beauty. Generally on Iowa soils the Wealthy leads all fall apples. The Snow is variable, does poorly in prairie soils; Maiden Blush is not hardy and neither of these old sorts bear young or regularly, while the Wealthy bears as early as Duchess, is at it every year and we know a block near Marshalltown 27 years old that has had a very profitable career. The Wealthy apple only needs be understood. It is a safe apple for Iowa and North, but all reports at this office from the "Q" line in Iowa and south do not make it an apple of any keeping qualities at all. It is facetiously called by some of our "Q" growers "the ten minute" variety.

W. M. BOMBERGER.

Harlan, Iowa.

SOUTHERN PEACH LANDS.

The Alabama Land and Development Co., Geo. Kilborn, secretary, Mobile, Ala., changes its ad in this issue of the Western Fruit-Grower, and we call special attention to the same. This company has a lot of splendid fruit land in the South, and desires to have it settled by enterprising Northern farmers. There are certainly very fine opportunities in the South, and those of our readers who desire to change their location will do well to write to this advertiser. With J. H. Hale, the Connecticut peach grower, putting out great orchards in Georgia, and Roland Morrill, the peach king of Michigan, investing in Texas peach orchards, it would seem that there is wisdom in looking to the South for peach locations. When you write to the Alabama Land and Development Company, please say you saw the ad in the Western Fruit-Grower.

RIPLEY'S SPRAYERS

It affords us great pleasure to recommend the above sprayer to the readers of our paper, from the fact they are used and indorsed by the leading nurserymen, fruit-growers and breeders in all parts of the United States and Canada. The Rippley Hardware Company, patentees and manufacturers of this sprayer, sell it under a binding guarantee to be as represented or make good their guarantee, as we know them to be a first-class business firm, they will stand by any offer they make.

This sprayer is made of copper and galvanized steel in two sizes—4 and 5-gallon. One point in favor of this machine is a fine brass pump which is fitted on the outside of the reservoir, which avoids the valves coming in direct contact with the spraying solution. The pump is connected close to the bottom of the side of the reservoir, by a copper tube through which the air enters the reservoir thoroughly agitating the solution at each stroke of the pump handle. The top and bottom heads are heavy double seamed and soldered, back seam strongly riveted and soldered; it has a safty valve and is a very strong sprayer. Also fitted with three feet of hose and a fine single Vermorel Sprayer nozzle; it will spray any kind of solution in the form of a mist, entering every part of the foliage. It will spray trees 25 feet high by using an extension pipe to elevate the spray. It is fine for whitewashing buildings, spraying trees and shrubbery of all kinds. We would advise all parties to correspond with Rippley Hardware Co., as they have a complete line of sprayers, all sizes and at various prices. They wish to secure a good agent or firm in each locality to canvass and sell their sprayers this winter and spring. One agent writes:

Ipava, Ill., Nov. 28, 1901.—Rippley Hdw. Co.: Gentlemen: I received the sprayer and have given it a thorough test; had it running all last Saturday afternoon on the street, where hundreds saw it. All pronounced it far ahead of old style sprayers, and at least a dozen say they will want sprayers in the spring. Of course, it is a little out of season now, but I am going to advertise it thoroughly between this and spring, when I expect to deliver quite a number of machines.—J. H. Brown.

The Family Friend

An old and true friend that will help you in times of distress. When racked with pain you would give anything for relief. In the hour when the little child, too young to make its wants known, lies suffering, its little face drawn with agony; in the hour when the good wife, worn and tired, needs an arm to lean on; at all such times, when the calling of a doctor means a dangerous delay, besides great suffering and a heavy bill, there is nothing else so good as a bottle of

WATKINS'
Vegetable Anodyne Liniment.

We receive numberless letters like these:

SAVED THE CHILDREN.

CLARA CITY, Minn., June 14, 1901.

We had five children sick with **diphtheria** last winter and carried them all through in one week without any doctor. **Watkins' Vegetable Anodyne Liniment** should be used at once as soon as any symptoms appear. We mixed two teaspoonfuls of Watkins' Liniment with two of vinegar and one of salt. Gave some of the mixture once an hour, also rubbed the Liniment on outside of neck. OTTO PETER.

HORSES WOULD HAVE DIED.

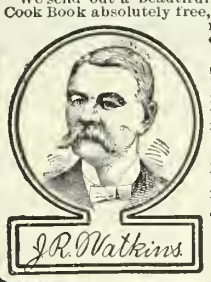
SHIPSHEWANA, Ind., June 18, 1901.

I have used **Watkins' Vegetable Anodyne Liniment** for nine years and find it the best remedy for **colic in horses** I ever knew. I saved two horses with it that would have died. Cannot speak highly enough of it. HENRY CAITON.

The best thing made for Cholera Morbus, diarrhea, flux, rheumatism, cuts, cramps, strains, burns, colic, mumps, sore throat, diphtheria, frosted limbs, etc. For horses and cattle it cures sprains, cuts, scratches, bruises, sweeny, colic, etc. Of course when you read this advertisement you may not feel the need, but the need of it may arise at any moment of the day or night, and then its worth can not be counted in dollars and cents. Order it the next time our agent calls, or if we have no agent in your county, send us your name and address at once, and we will see that you are supplied.

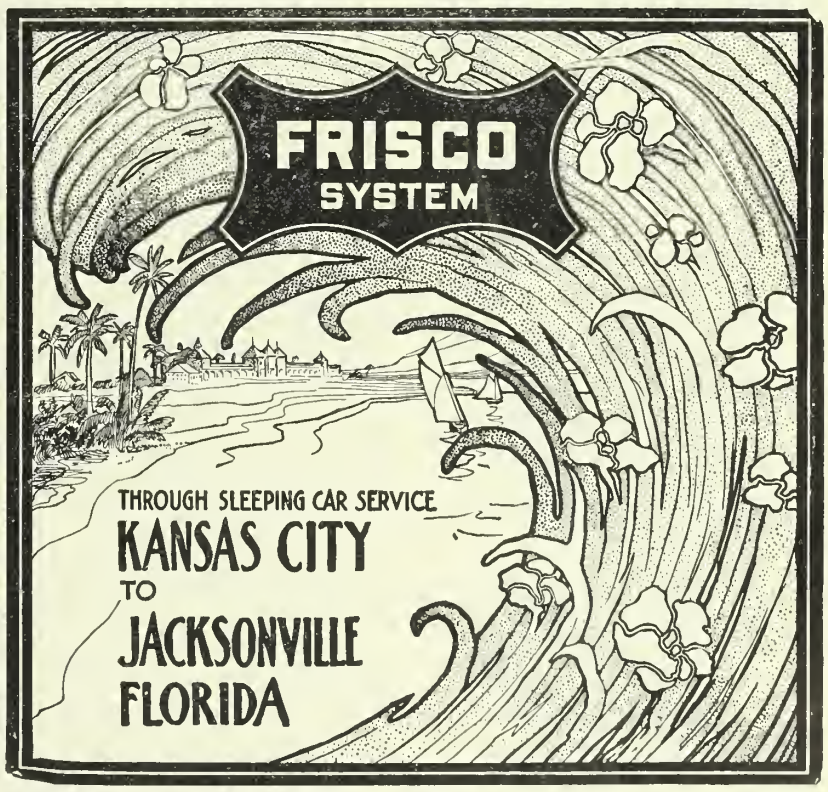
FREE! FREE! FREE!

We send out a beautiful 100 page illustrated Home Doctor and Cook Book absolutely free, and want to place your name on our mailing list. It is the cleverest and most complete thing of its kind ever issued. Write for one to-day.



Wanted a Man. We want one good, open-eyed young man in each neighborhood who has a little ambition, and an inclination to get on in the world, to write to us. We are in a position to start him in a good paying business of his own. We have lots of young fellows, "boys" you might call them, who are making a nice thing selling Watkins' Remedies.

The J. R. Watkins Medical Co.
36 Liberty Street,
Winona, Minnesota, U. S. A.



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1427 Silk Fringe Cards, Love, Transparent, Escort & Acquaintance Cards, New Puzzles, New Games, Premium Articles, &c. Finest Sample Book of Visiting & Hidden Name Cards, Biggest Catalogue. Send 2c. stamp for all. OHIO CARD CO., CADIZ, OHIO. **CARDS**

Poultry Dept.

By W. P. Laird

NOT ALL SUNSHINE.—A person asked us recently in some correspondence in reference to poultry raising, "If the business was all sunshine?" and he adds, "I have read various poultry journals for several years and I have met with many glowing pictures of success in the papers and of all the immense profits derived from a few hens, that I was last spring induced to experiment a little myself with a few birds and I will say that I am quite content so far with the results I have had the past summer and fall. But really, to be candid, I do not find it all sunshine in this business."

No; we can readily understand this. In our writing we never attempt to impress such an idea upon the mind of a beginner. But we are sorry to have to say that at the present day there is a lot of bosh published in the journals, written by men and women who have had no practical experience along this line, but seemingly have an unlimited flow of language and in this way they do a great amount of injury to the business, inducing many with limited capital to enter the field on a large scale, and in a short time utter failure stares them in the face. It has been our purpose always to urge the entrance upon this work slowly.

From our own long experience along this line, we know the pleasure it gives as well as some of the disappointments, and know the profit that judicious poultry breeding affords to the careful, well-disposed poultry man in handling this beautiful and useful kind of live stock. But any one will find the enterprise is not a work that is always smiled on by the "sunshine." We must expect cloudy days, stormy weeks, unpleasant months at times in this business. There are many difficulties to be encountered, and the amateur will experience disappointment and unexpected troubles as he proceeds. Yet, if he continues in the work assiduously and conscientiously he is sure to be the gainer in the end.

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Let the Hens Lay Eggs and You Do the Hatching.—You can readily see how unprofitable it is to use hens for hatching on a large scale while they are more profitable for laying. A hen of a good laying strain will, during three months or more necessarily consumed in the hatching and brooding of a flock of chicks or ducks, if properly cared for, lay from seventy to one hundred eggs. Hence we claim that it will be impossible to establish a system of raising poultry sufficiently large to justify the time, expense and the care that the undertaking calls for if hens are relied upon to perform any other part than to furnish the eggs.

A hen cannot perform more than one side of this question and she has to be well taken care of to do this. She cannot lay eggs in large numbers, set from three to six weeks, take care of a brood ten weeks and yet be very productive to the owner. That it is more profitable to raise chicks or ducklings by artificial means can be easily demonstrated. I am often asked the question, "Will an incubator hatch as many chicks or ducks from 200 eggs as the hens and will a good brooder raise as large a per cent of the hatch as the hens?"

Before answering this the writer would like to ask a word in reference to hatching and brooding by the hen process. Take a hen, for instance, say in December, she cannot properly cover more than ten to eleven eggs; and of these you cannot reasonably expect more than from five to seven chicks. She very often kills one or two before she leaves the nest, and on an average will raise from two to three to broiler size, which we think is an honest estimate, taking for granted, of course, that all the eggs are fertile. A good incubator will hatch from 50 to 90 per cent of all fertile eggs, and a good brooder will raise as high a per cent of them, other conditions, to be sure, being right. By the use of incubators and brooders you do not have to keep more than one-half as many layers. Why? Because, if a hen is not allowed to set she will lay double the number of eggs. If you reside in the city, with incubators you can hatch and rear your own table fowls, having chicken on your table just when you want them, and not a hen on the premises, besides affording you a pleasureable occupation for a few moments each day, and a saving on your table expense. If you are a farmer you need them to show you what a valuable crop you are neglecting; for it is a matter of statistical proof that the poultry crop of this country is of vastly more value than the wheat crop, and these incubators will pay you a hundred per cent more than any other investment you can make on the farm. If you raise any broilers for the market, of course you need incubators, but perhaps cannot make up your mind which make to purchase. There are a number of good machines offered to the trade at the present day. It is a mistaken idea for you to buy a machine because it is cheap. It's far cheaper to buy a machine that will do the work at a fair price than to purchase a poor one at a low figure. You can soon spoil enough eggs in a worthless incubator to pay for two good ones.

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QUESTIONS AND ANSWERS.

Q.—Is there any way to tell the age of a hen?

A.—The only sure way of knowing this is to know when the birds were hatched. They vary so in looks. Hens are like people; some carry their age better than others.

Q.—In mating up your birds, how many females would you advise putting with a male and get a high per cent of fertility?

A.—When your breeding birds are in confinement we think it best to put from 8 to 10 females with a male, but should they be allowed the range of the farm, you can place as many as twenty hens with one male, and get eggs that are well fertilized.

Q.—Is there any given amount to be fed to a hen in order to get best results?

A.—This is a question that cannot be answered satisfactorily, as a person must be governed accordingly. We feed only what the birds will take up clean (when feeding soft feed) and look for more, and in feeding hard feed we allow a medium handful to two birds. You must in all cases be governed by the appetite of your birds.

Q.—What kind of a feed, in your experience, do you consider the best to produce pertile eggs?

A.—Your birds, in order to lay plenty of well fertilized eggs, need a variety of feed, especially if the birds are confined in small yards. For your morning feed, give wheat, corn or oats; never feed two kinds of grain at same feed. Feed always this whole grain in plenty of litter of some kind so the birds will have to hustle for their feed. Otherwise they will always be ready to eat, but you will have an empty egg basket. For their evening feed, feed a mixture of equal parts of corn, wheat and oats, ground together; feed this in a stiff mash mixed with hot water in cold weather. If you wish eggs for hatching do not feed this mash oftener than every other evening, but a feed of hard grain on evenings that you do not feed the soft feed. See that they have grit, oyster shell, green cut bone twice a week, and green feed of some kind at least once a week.

Q.—What size window do you use in a brooder house and what kind of meat do you think best for small chicks?

A.—We advise sash 10x12 12 lights, a very good size for brooder house. In a cold climate these sash should be double glazed. Sunshine and exercise is medicine for little chicks. Small chicks are babies and must receive baby care. Let their first feed be finely ground oyster shell.

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PRACTICAL POINTERS.

Poultry, like the human race, need rest. If they lay nine months in the year, let them have three months to take on a new coat of feathers and recuperate.

Do not forget that each hen is an individual; that no two hens prefer the same food nor eat the same quantity; in fact, a flock of hens will eat more some days than they will others. There is no rule or fixed quantity for feeding, as the work must be learned by observation. We never feed three times a day. This is a waste of feed. Feed morning and night; the morning meal take of grain scattered in litter, rather too little than too much. At night give a full meal.

The male birds should be changed every other year at least.

In building poultry houses bear in mind that comfort comes first; to secure this the houses should be roomy, warm and well ventilated; should be kept clean and dry.

Diarrhoea is caused frequently by your brooders becoming too cold, but too wet food is very often responsible for its appearance. Keep them comfortable in the brooders and feed a variety.

Above all things never allow lice to infest your poultry buildings. A lousy hen is as bad to breed from as a hen with cholera; both are debilitated and can never furnish eggs that will hatch healthy chicks.

We do not advise the attaching of roost poles to the support. These should best be movable, thereby allowing their being given a bath of a good liquid lice killer. Never place your roosts one above the other, but on a level.

Leg weakness in brooder chicks is caused by too rapid growth and more frequently by bad constructed hot air brooders. The dry and hot floors of bottom heat brooders will dry out the oil of the leg, and cramps, followed by leg weakness, is sure to occur. Outdoor exercise, less heat and light feeding is the only cure.

Do not feed young chicks too rapidly when kept in small pens. Avoid feeding hard boiled eggs too freely, or ground meat. Cut clover and cut roots will always be found excellent substitutes for grain, and bone, roots and clover are cheapest and best foods that can be used. If the hens are supplied with egg producing elements they will give a profit. It does not pay to save fifteen or twenty dollars in the cost of a good bone cutter and lose a hundred dollars or more without its use. The wheat grower must have a harvester and binder, the corn planter must supply himself with plows, harrows and cultivators, and the stock raise cannot do without feed grinders, fodder cutters and other necessary adjuncts to success. The poultry man cannot succeed without a bone cutter and he has the advantage of securing an excellent contrivance at a very small cost.

It's a good plan on the farm to reserve several extra male birds to be used in the case of a bird getting hurt or sick. W. P. LAIRD.

Oil City, Pa.

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RAISE SOME POULTRY.

One time a rich farmer told the writer that the best time to go into stock or grain was when everybody wanted to quit. He didn't own all the land that joined him, but he did own several hundred acres of good farming land and held a first mortgage on a lot more. Outside of this particular notion of his he was just like other people.

Every year we see where money could be made had we been able to see ahead. There is hardly a year that some particular farm product does not nearly double in value.

About seven years ago horses were nearly given away, right then would have been the time to buy up the best brood mares in the country. Some seasons hay is worth a little above the price of cutting and stacking, then the first thing we know it is away up out of reach. But what has this got to do with the poultry question? Perhaps nothing but the indications are good that those who raise poultry this com-

GEORGE WASHINGTON had a sure little hatchet; it cut down a cherry tree. Our LITTLE HATCHIT INCUBATOR is a sure "hatch it" because it hatches chickens just the same as our larger machines. Made of California red wood, three walls, cold rolled, 12 oz. copper tank. Hydro-safety lamp, Climax Safety heater and celebrated corrugated wafer regulator. Holds 75 eggs and sold at a low price. Just right for beginners or owners of small flocks. Mammoth Catalogue is now ready; full of practical information, hundreds of actual photographs and testimonials of actual users. Send for one. Write nearest House.
SURE HATCH INCUBATOR CO., Clay Center, Nebr., or Columbus, Ohio.

THE CYPHERS INCUBATOR
IS THE STANDARD HATCHER OF THE WORLD.
Used with uniform success on twenty-six Government Experiment Stations in the U. S., Canada, Australia and New Zealand; also by America's leading poultrymen and many thousands of persons in every walk of life. Guaranteed to give satisfaction or price refunded. The original and only genuine non-moisture incubator, fully covered by patent. Winner of
GOLD MEDAL AND HIGHEST AWARD AT THE PAN-AMERICAN,
Oct., 1901. Illustrated, descriptive, 32 page circular FREE. Complete new catalogue for 1902 containing 196 pages, 8x11 inches in size, for 10c in stamps to pay postage. Illustrates over 100 of America's largest and most successful poultry plants. Ask for Book No. 157 and address nearest office.
Cyphers Incubator Co., Buffalo, N. Y., Chicago, Ill., Boston, Mass., New York, N. Y.

1 2 3 4 5 6
Count the Chicks as they come out. Then count the eggs, and you will see why so many people are using
Successful
Incubators and Brooders,
The healthy egg becomes the vigorous, husky, moneymaking hen. You will want our beautifully illustrated catalogue. Five different editions in five languages. English edition 4 cents; others free. It is a poultry Bible.
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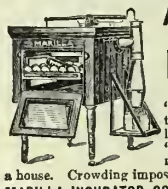
The WOODEN HEN

A high-class self-regulating incubator on a small scale. Fifty egg capacity. Heat, moisture and ventilation automatically and perfectly controlled. Price only $6.80.
Send for the Wooden Hen Book; mailed free, together with a book about the EXCELSIOR INCUBATOR, to those who name this paper.
GEO. H. STAHL, Quincy, Illinois.



A LITTLE BEAUTY is what they call the 55 egg.
MARILLA INCUBATOR.
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Sell 6 at $5, or 5 at $9.50, or 4 at $14.50 and get one of same kind
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Ella M. Davis, Beardstown, Ill. (Georgia Fisher taking care of the little chicks.)

The above photo is a sample of over 200 photos that are in our Fifth Annual Catalogue, which is now ready for mailing free for the asking.

The catalogue contains page after page of useful, honest poultry information and should be in the hands of every poultry raiser. Tells how to make money on a small investment, how the hens hold down the homesteads and hundreds of other things of interest and use to the poultry raisers. It also explains why over 20,000 poultry raisers like the Sure Hatch Incubator and Common Sense Brooders. Address nearest office, Sure Hatch Incubator Co., Clay Center, Neb., or Columbus, Ohio.

ing season, and lots of it, will be on the ground floor. On account of the drouth throughout the corn belt the past season, thousands of farmers gathered up and sold everything that could eat corn and was salable and the hens did not escape the sacrifice.

The corn belt—I have not looked up the authorities and do not know exactly what part of the country the belt goes around,but I think it refers to the states that depend on corn principally and this would be fully 50 per cent of this country.

An extensive poultry buyer told the writer recently that his business paid better than ever, although he had to cover twice as much territory to get a carload. It seems to me there is a whole chapter in this statement for the poultry-raisers. It certainly indicates a shortage in poultry and to such an extent that the poultry raisers will be fortunate until the demand is supplied, which will take at least two years of our best efforts.

M. M. JOHNSON.

An Interesting Report Boiled Down

The annual report of the Secretary of Agriculture, Hon. James Wilson, is a very interesting document, and reflects credit upon that gentleman and his assistants. It is too long for the busy farmer to read, perhaps, so the Western Fruit-Grower has gathered a few extracts which will be interesting to fruit-growers. We refer only to the purely horticultural features of the report, and those which are allied to horticulture:

In the line of plant-breeding, the department has secured a cross between the hardy Japanese orange and the Florida sweet orange which is the hardiest evergreen orange known, and there is promise of securing a fruit both hardy and of good quality. Considerable success has also been attained in breeding raisin grapes resistant to the disease known as "coulure."

The department has been investigating the "little peach" disease which has existed in orchards of New York and Michigan. This disease is so-called from the fact that the fruit ripens when very small, this system becoming more pronounced each year until the tree dies, which it invariably does at end of two or three years. The cause of "little peach" isbelieved to be a fungus which attacks the very young roots, and already the matter of preventing it by securing resistant stocks has been taken up.

The exportation of apples, pears, etc., has been investigated, and attention is called to the rapid increase in our exports of apples since the magnificent showing made of this fruit at the Paris exposition.

The introduction of Japanese rice seed in Louisiana and Texas three years ago has been the means of making possible the culture of this valuable food plant. So successful has been the industry that in three years the importation of rice has fallen from 154,000,000 pounds to 73,000,000. This country now imports $800,000 worth of macaroni every year, but it is believed that introduction of macaroni wheat into the Dakotas, Nebraska and Kansas will not only cut off these imports, but allow the country to become an exporter in this line.

Fully 90 per cent of the date palms introduced from Africa are now doing well in Arizona and Southern California. This year a collection of the choicest varieties in Egypt have been obtained.

Progress is reported in the introduction of Egyptian cotton, the imports of which now amount to $8,000,00 annually. Experiments in tea culture are being carried on in South Carolina, and this year 4,500 pounds of high-grade tea were produced, which found ready sale.

An expert sent to Japan has found that the San Jose scale is not a native of that country, but that it comes from North China. In the district from whence comes this pest the agent found a species of ladybird beetle which is a natural enemy of the scale. Many specimens have been secured, they will be climatized, and then set to work to help exterminate this enemy of the orchardist. It is believed this importation will prove of extreme value to fruit-growers. Another ladybird beetle which feeds upon several distinct species of plant lice has been accidentally imported into this country from Europe.

The secretary commends the agitation for the introduction of the elements of agriculture in the public schools. He says the Department of Agriculture should take a still more active part in encouraging this work, and recommends encouragement by distributing seeds and plants to establish school gardens, by furnishing schools with collections of specimens of insects, of plant diseases, and other illustrative material, and by supplying the teachers with such publications of the department as may be useful to them.

The secretary devotes a great deal of space to a discussion of irrigation investigations. These have been conducted through the Office of Experiment Stations, and embrace (1) studies of irrigation laws and the social and industrial institutions of irrigated agriculture (2) investigations of the methods by which water is conserved, distributed and used.

In reference to the first subject the secretary states that the character of the titles to water finally recognized will do more than all other influences combined to determine whether the Western farmers ought to be tenants or proprietors. Naturally, this makes the disposal of the water resources of the West a matter of vital importance not only to the persons directly interested, but to the country at large. Every consideration which justified the general government in the control, the survey and disposal of public lands, applies equally to the orderly and just establishment of titles to water by public authority, either State or national. He points out the confusion and trouble and almost endless litigation frequently attending the settlement of this question, and declares it to be absolutely necessary that some simple and final method of determining and protecting rights to streams should be provided. In the meantime the conditions, as they exist in arid States, are being carefully studied by the Department.

The secretary expresses the belief that irrigation will, in the near future, become a subject for legislation by Congress, there being important reasons why it should have the attention of that body. At the same time, he says that those best informed believe that the uncertain character of water rights can only be remedied by a larger measure of public control and making of certain classes of irrigation structures permanently public works. These, it is urged, should not be owned by private parties, and the argument produced in favor of constructing reservoirs by act of Congress is the same which justifies setting aside forest reserves by act of Congress and the maintaining of a force to control them. On the other hand, the secretary points out that an appropriation of money by Congress to construct such irrigation works will bring the country face to face with a new government policy and will carry a larger measure of public control over the water resources of the West than has hitherto prevailed or been sanctioned by public sentiment.

He reviews the influence of land laws on irrigation development, stating that laws which control the disposal of 500,000,000 acres of arid public lands must have a vital influence upon the success of irrigated agriculture. He condemns the desert-land act, stating that 640 acres is more land than a man of moderate means can cultivate under irrigation. Cutting down the entries from 640 to 320 acres is an improvement, but he believes in the entire repeal of the desert-land act and in requiring settlers or homesteaders to cultivate as well as live on their land.

Perhaps that part of the report in reference to irrigation which most interests our readers is what is said about irrigation in humid sections. Interest in irrigaton in these sections is constantly increasing, and has been stimulated throughout the Middle West by the drought of last summer, and in the South and Southwest by the success of the rice industry. In the State of Louisiana more miles of irrigation canals have been built and more money expended on pumping plants during the past two years than in any arid State. The application of irrigation in growing rice in Louisiana and Texas has made land worth originally from $5 to $10 per acre worth $50 to 100 per acre, and promises to enable the United States to become an exporter instead of an importer of this important food product.

A recognition of the increased interest in irrigation in the East has caused the Department to extend its investigations in this part of the country. The experiments being made by Prof. H. J. Waters, of the agricultural experiment station of Columbia, Mo., are attracting wide attention in that State, while the investigations of Prof. F. H. King, of the Agricultural Experiment Station of Wisconsin, at Madison and Stevens Point, and of Prof. Edward B. Voorhees, of the Agricultural Experiment Station of New Jersey, will serve to show the value of irrigation in securing larger yields and providing an insurance against drought. The indications are that irrigation is to have a wide field of usefulness in many sections where it is not a necessity. Especial attention has been paid during the past year to the subject of rice irrigation, and a comprehensive report dealing with the methods of application, the cost of water, and the value of the product will soon be ready for distribution.

The fact that the United States is destined to become one of the leading irrigated countries of the world makes it especially desirable that the laws which control the ownership of streams and the methods of applying water should represent the best thought and experience of our time. Nothing can be more foolish than to continue to learn experimentally for ourselves what is already known elsewhere. The lessons of southern Europe should be placed before the growing communities of the West through reports of experts familiar with our conditions, and who can thus compare their methods and ours. The first of such investigations, embracing Italy and Egypt, is now being carried on.

In no year since Western settlement began has the prosperity of the irrigated farm been as marked as during the one drawing to a close. The high prices of cattle and sheep have contributed to the profits of the grower of forage crops. There has been a ready market and good prices for all the surplus products of the irrigated farm and garden, and these high prices have been accompanied by an almost uniform record of large yields.

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Girls can get this beautiful Life Size Doll absolutely Free for selling only four boxes of our Great Cold & Headache Tablets at 25 cents a box. Write to-day and we will send you the tablets by mail postpaid; when sold send us the money ($1.00) and we will send you this Life Size Doll which is 2½ feet high and can wear baby's clothes. Dollie has an Indestructible Head, Golden Hair, Rosy Cheeks, Brown Eyes, Kid Colored Body, a Gold Plated Beauty Pin, Red Stockings, Black Shoes, and will stand alone. This doll is an exact reproduction of the finest hand painted French Doll, and will live in a child's memory long after childhood days have passed. Address,
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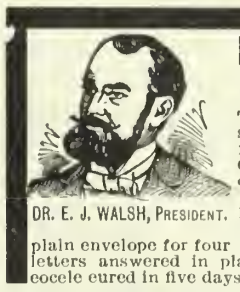

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Black Ben Davis "King of the Orchard"

Entirely Different from Gano

Major Frank Holsinger writes us under date of Dec. 30, 1901: "I promised you yesterday to do you justice in the matter of **Black Ben** vs. **Gano.** As I told you, at first I thought them identical, but in a latter examination concluded differently. . . . . I feel positive now, with what evidence I have, that they are different. . . ."—Frank Holsinger.

If others who have been spreading the report that Black Ben Davis and Gano are the same, were as careful to **investigate** and as **honest to admit** their mistake as Maj. Holsinger many planters would be saved the disappointment of planting Gano with the idea of getting the same or as good an apple as Black Ben Davis. Gano is a good apple, but **Black Ben Davis is SUPERIOR in size, color and keeping qualities.**

Champion: Next to Black Ben Davis, the **most valuable** of all market apples—good grower, **young bearer,** good color—much better keeper than Ben Davis, and a **great drouth resister,** having stood last summer better than any other sort. **Delicious, Senator, Apple of Commerce, Jonathan** and **Grimes Golden** complete the list of **MARKET and QUALITY KINGS.** Our stock of 1 and 2-year old apple trees is the largest in the U. S., and **quality is unsurpassed.**

PEAR, Standard: Leading sorts, in-cluding Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others—**extra fine trees.**

PLUM: A full stock of all the BEST varieties, including Burbank's Climax, Sultan, Shiro, America. Gold is still **increasing** in popularity—we have most excellent reports from all over the U. S.; should be in **every** orchard.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, E'y Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce for spring; orders should be placed at once.

ELBERTA PEACH

We still have a fair supply of this most valuable of all peaches. Our stock of Elberta alone was more than 2,000,000 trees and by turning down orders from other nurseries we maintained our supply for planters' trade. We must admit that we have no surplus, and those who wish to plant the coming spring must place their orders early or be disappointed. The stock is strictly first-class in every particular.

PEACH, of all varieties, very **scarce** thruout the U. S., and nurserymen who have sold their small stocks and are unable to procure more, are advising planters to wait until next year. But we have a stock in keeping with Elberta and are **still prepared to supply planters** with all the standard varieties, notwithstanding the enormous trade of last fall from the Southern States. No need of waiting until next year to plant peach orchards—a year's time lost is never regained.

APRICOT: Sunrise and Superb, the only two varieties worth planting east of the Rocky Mountains. Also American Seedlings, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading sorts for home use and market—London Market Currant, Houghton Gooseberry and Cumberland Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

BUDDED LILACS: Superb Sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every door yard, should have them. **Perfectly hardy.**

ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

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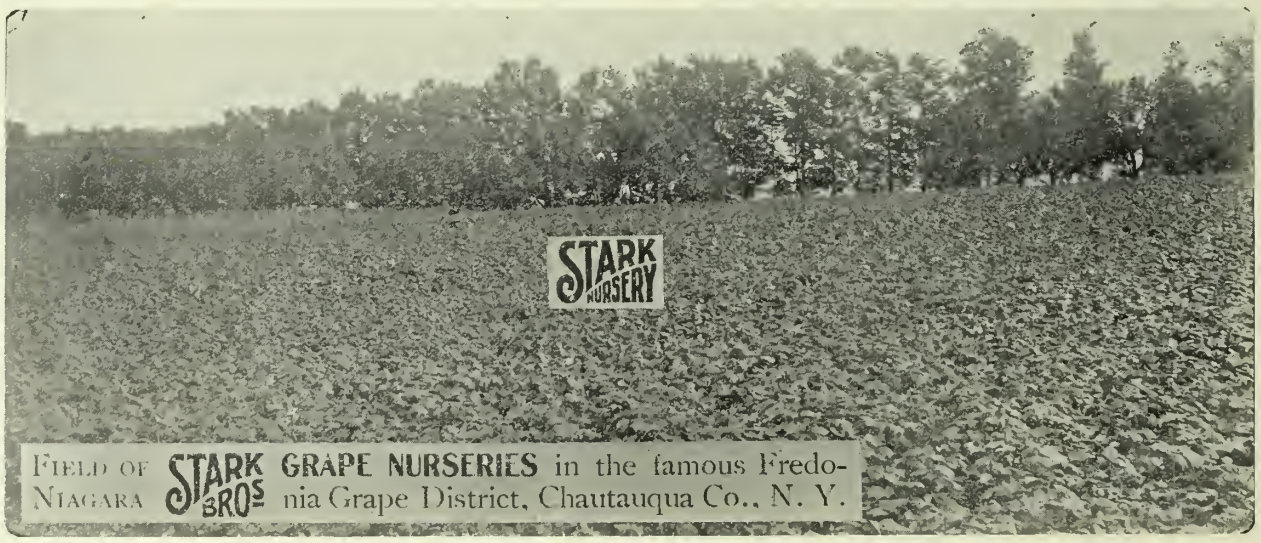
For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines; for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivition, we are able to reduce prices materially.



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We are ready to meet all competition in both quality of stock and **low prices.** Large orders for vines of nearly all varieties grown by us can be shipped from either Portland, N. Y., or Louisiana, Mo.; small assorted orders will be filled from Louisiana, but with the fine N. Y. grown vines—we having discontinued growing grape elsewhere. Leading varieties are Moore's Early, Diamond, Niagara, Worden, Concord, Brighton, Delaware, etc., all sorts of **established** value in all markets. For the home vineyard we grow the sorts of finest quality; in fact, our list embraces **the best** for all purposes, covering the entire season from early to late.

We PAY FREIGHT on Orders of $12 and Over, Box and Pack Free, Guarantee Safe Arrival, GUARANTEE SATISFACTION. Write for Stark Fruit Book, Price List, etc.—free upon request.

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Volume Eleven FEBRUARY 1902 Number Two

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.

ST. JOSEPH, MO.

HOME AND GROUNDS OF LUTHER BURBANK, SANTA ROSA, CAL.

The Missing Link Apple

The Missing Link Apple

The Missing Link Apple

The Missing Link Apple

Have you ordered Missing Link? If not, why not?

Thousands have it growing, and thousands more are ordering it now. Every day brings in large numbers of orders from all over the United States and many foreign countries.

Missing Link Apple

is the most Practical Apple for Home and Market use for a Late Keeper. It is the only Apple that will keep in a common cellar until the new crop is ripe—in fact, you can have two crops in the cellar at once if you wish.

We have hundreds of agents selling it, and you might be. We are the only nursery propagating the MISSING LINK. All rights reserved, under registered trade-mark, No. 31,993.

Some unscrupulous nurserymen and their agents are purporting to sell MISSING LINK, without our authority. Ask to see their certificate of agency. Ask if they can give you a bona fide guarantee of $5.00 on each tree that they will be true to name. If they cannot do this, they are frauds, and will be prosecuted by us on proof of facts. Write us today for particulars and terms to agents.

THE MISSING LINK APPLE COMPANY, Clayton, Illinois

A Complete Line of Nursery Stock. Fine Line of Peach a Specialty.

It Pays to Plant Our Kansas Grown

Strawberry Plants

This fact has been brought forcibly to our mind the past ten days by the many orders we have received from our old customers, some of whom have bought plants from us for fourteen years.

Some plant growers in other states will tell you that they are located in the natural home of the Strawberry. Why, bless your life! did you know that when I was only a boy 20 years ago I have seen hundreds of acres of wild strawberries right here in Jackson county, and fine ones, too. Picked many a bucket full—just think of it, picking wild strawberries by the bucketful, and best flavored berries on earth!

Then you must not forget that Kansas is the home of the AROMA, the leading strawberry of the West. If all the plants we have on our farm were Aroma we believe they would be sold.

Where is there another equal to it? Of course, Gandy is a close second.

Now, there is the Clyde, Stayman, Vories, Kansas and Mele, all of Kansas origin and winners under any and all circumstances.

Wipe out all other sorts and we have a list that can't be beaten for berries, plants or profit. Of course, we have about 100 other varieties on our grounds, but none of them excell the varieties mentioned above in this locality.

PROBABLY YOU HAVE NEVER TRIED ANY OF OUR PLANTS. If not, you had better get on the Band Wagon. Of course, we do not have a patent on their propagation, but we do know that after a Strawherry plant has passed through the toughening process of a Kansas Summer, assisted by our best methods of thorough cultivation, and grown on good soil, I tell you a plant has so much energy stored up that when you do plant it in a more favored clime it fairly astonishes you.

Not only have we Strawberries, but there is the

Kansas and New Cardinal Raspberries

Now, we have others also, Raspberry plants, Grape Vines, etc.
Our new catalogue tells all about what we have. Write for a copy now.

ADDRESS

F. W. DIXON, Holton, Kan.

MORE BEAUTIFUL AMERICAN CITIES.

There is nothing stereotyped or formal about the eighty-page booklet, "The Twentieth Century City," which contains the proceedings of the annual convention of the American League for Civic Improvement, held at Buffalo in August, 1901. The pamphlet bears none of those usual marks of compilation that make us skip all reports. The topics discussed are such as interest every one who cares anything at all for his home, his city or his country. The papers read were unusually practical and suggestive, and have enough variety to satisfy every one. The reader is surprised at the magnitude and scope of the work included under the term "civic improvement." The topics discussed include such as, "How a Village was Improved," "The Renascence of Civic Beauty," "The City of the Future," "University Extension as Related to Civic Improvement," "Better Highways," "The Influence of Neighborhood Improvement Associations in the Embellishment of Cities," and "Relation of the Exposition to the Public Beauty Movement." There is nothing of politics in any of these, but plain, practical, every day matters of home, school and society.

The variety of subjects fittingly expresses the purpose of the convention to serve as a clearing house of ideas and information, and the Aim of the American League for Civic Improvement to constitute itself a "league of leagues," a federation of national and local civic influences. The speakers at the convention were people of national prominence, and their names gave force and authority to what they said. When people like Prof. Charles Zueblin, Mr. Albert Kelsey, Hon. Charles M. Loring, Mrs. Conde Hamlin, Dr. Mathew D. Mann, Miss Mira Loyd Dock, Mr. Edwin L. Shuey, Prof. John Craig, Mayor C. E. Bolton, Mr. Starr Cadwallader, Hon H. S. Earle, and Mr. William Scott speak upon these questions, there can be no doubt that they do so after long experience and from practical knowledge. The illustrations of this pamphlet enforce the scope of the work and assist materially in a complete understanding of the plans proposed. Not the least important of the suggestions is the action of the Convention, urging the provision at the St. Louis Exposition of an object lesson in modern city making by the arrangement of a model city, not on a small scale but "life size." This was the first step taken in what promises to be a remarkable movement, not only for expositions but for the entire country. The appendix outlines plans and gives sources of information so that public-spirited students and workers may easily inaugurate such forms of worthy effort as will best serve their respective communities. This report shall be in the hands of every lover of home and civic beauty. It may be obtained by addressing The American League for Civic Improvement, Springfield, Ohio, with an enclosure of fifteen cents in stamps.

Elsewhere in this issue appears the advertisement of Augustine & Co., Normal, Ill., exclusive propagators of the Sudduth pear. For this pear several things are claimed and seem to be substantiated: It is an early and heavy bearer, tree is perfectly hardy, the original tree being over eighty years old, and the trees have never blighted. Sudduth pear trees have been planted in many states, but, so far as known, not one has ever been affected by blight.

The Kansas Home Nursery

Has for more than thirty years been growing, testing and disseminating that which is proven best for our soil and climate.

The Experimental Grounds

Contain a vast number of varieties, showing the comparative merits; and in Ornamentals many fine specimens such as cannot be found elsewhere in the state.

We Offer

SEEDLESS grafted Persimmons, large fruit, ripe before frost.

DECIDUOUS CYPRESS—Specimens here 25 years, never injured by drouth or cold.

JAPAN KOELREUTERIA — Fern-leaved, "Golden Rod Tree."

TAMARIX—Both tree and shrub, perpetual flowering.

RUSSIAN OLIVE—Silvery foliage, sweet flowers, withstands cold or drouth.

CATALPA BUNGEI—Hardy Umbrella tree. (Colored plates of last three at 5c each.)

EVERGREEN TRAILING MEMORIAL ROSES for Cemetery or rockery; and the largest assortment of

ORNAMENTAL STOCK in trees, shrubs, roses, herbaceous plants, etc. Everything for private or public Park.

CARDINAL RASPBERRY—The unusual trying year past has given added testimony that it is the hardiest and most profitable of all

A FULL LINE of Standard and New varieties of fruit trees and plants for Home and Commercial Orchards.

CORRESPONDENCE INVITED. Estimates furnished. Plans drawn. Lists free! Agents Wanted!

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THE WESTERN
FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.
ST. JOSEPH, MO.

Roland Morrill on Stand

What He Said to Illinois Fruit-Growers on the Subject of Growing Peaches, Reported Stenographically

AT THE late meeting of the Illinois State Horticultural Society Mr. Roland Morrill was on the program for the first evening for a paper. Now, Mr. Morrill says it is seldom he prepares a paper beforehand—his talks are off-hand. His remarks, as reported for Western Fruit-Grower readers by stenographer, may therefore appear rambling, Mr. Morrill says, but they are certainly none the less interesting. In view of the increasing interest in peach culture we are pleased to give Mr. Morrill's remarks in full. He said:

"The question of peach culture, I suppose I am expected to talk on from a commercial grower's standpoint; I presume that is the idea, and really I know more of it from that standpoint than any other. The past season has been one that made peach culture more interesting than any other season that I recollect in Illinois, from the fact that they have shipped an excellent lot of peaches to market, and I suppose made a reasonable amount of money. We used to talk about peach sections, for it used to be supposed that the peach was confined to certain narrow territories, some of them down East, one of them over in Michigan, another in Southern Illinois, but the spirit of commercialism has led men to study requirements for succesful culture of various kinds of crops, one of them of course being the peach, and that study has set men to hunting for suitable locations. Knowing the requirements, we find there are millions of acres of good peach region. I have no idea of how much undeveloped first-class peach land there is in the United States, and the transportation companies have made possible the delivery of peaches grown in any section of the United States to any part of the United States with due despatch and in good order. That leaves commercial peach growers in a position where it is a question, perhaps in the near future, of a survival of the fittest; a brutal old law, but humankind seems to know no other but the survival of the fittest. In the pursuit of the almighty dollar we know of no limit to our ambitions. Where acres of peaches were planted a few years ago, whole solid sections are growing today. The market of course has been developed and extended by these same transportation facilities; the consumption of all fruits seems to be on a rapid increase, although we must doubt as to whether it can keep up with the wonderful increase in the production.

"The question of hardiness or variety, development of new varieties, has had much to do with providing supplies of fruit in what used to be considered off seasons, until today there probably will not be one year in twenty but what the markets will have at least a fair supply of good peaches. So, as I say, it resolves itself into a question of skill, the survival of the fittest, as to who shall supply these markets at a profit.

"In the first place, I think the day for small acreages of peaches has gone by. There is nothing attractive in a cartload of peaches today, but carloads will bring buyers across the continent, if the quality is good. The novice does not know how, as a rule, to put quality into any fruit. The neglectful man fails, the man who makes a bad selection of location fails, the man who does not understand varieties fails, and the man who has not grown up in the business, or has not the helpful advice of men in the business, often fails, until, as a matter of fact, we have a great many financial wrecks in orcharding all over the United States, in spite of the fact that you seldom hear of it in a meeting like this.

"I just urge that as a bit of caution, because we hear of all the good things. If a man makes $10,000 growing peaches this year, his reputation goes all over the United States; if another goes into another section and sinks $10,000 you seldom hear of it. Those are the things I want to call your attention to, not to discourage any man, but to encourage the men who are enterprising enough to go into the business and to adopt the very best methods and study the situation carefully before risking their money or their time in the business. When this is done, I know of no business in the cultivation of soil that pays better than peach growing. Our apple-growing friends may feel that the balance is in their favor—and possibly it is—that depends somewhat on the point of view, probably, but the man who can make a success of peach growing must love the business. He must understand a few essentials in selecting the location; he must know that elevation means everything to the peach orchard under trying conditions; he must understand the effect of temperatures upon plant life, and peach buds particularly; he must know that cold air runs down hill as rapidly as water; he must know that buds of a peach do not die in moving air as quickly as they do in still air; as, for instance they may not kill on the top of the plateau, and on the side of the lower level, but kill at the lower level; he must know that there must be a proper balance maintained between root and top in his care of a tree; he must know that a tree which has been devitalized by neglect in the nursery, or between the nursery and the orchard, can never make him a good profitable orchard; he must know how to combat the various insects and fungus troubles that we have to meet; he must know how to pick the peach just ripe, how and where to market it, and he must be a judge of men. Now, those are a great many essentials, and still hardly beginning.

"I would just take up two or three of these little ideas in detail, preferring that other points should be brought out in discussion. I spoke about proper balance between root and top. As I said, my talk will be rambling. A peach tree has a tendency to grow more top, to produce more blossoms, produce more peaches than it can possibly support without devitalizing the tree. The balance must be preserved by a careful culture of the soil, without mutilation of the root, at the proper time. The proper time to begin your culture is when the growth commences, and hustle it as rapidly as possible; cultivate thoroughly, shallow, and cease at a time which you must determine from your own conditions, the condition of the tree and the nature of your soil.

"On my soil, which is not a nitrogenous soil, if a tree is bearing a heavy load, I will carry on that cultivation as long as I can get around that tree, until the branches begin to hang down. If it is a highly nitrogenous soil, I would stop a bit earlier. If it is a young tree, growing thriftily, I should stop a good bit earlier, but anywhere in the middle of the summer would be to put a check on the tree. I would not throw the tree into a semi-ripe condition by growing a crop that ripens in the middle of the season, because that other crop becomes a robber and takes out of the soil at its ripening period all the moisture. The warm and wet weather follows and your tree takes in a great supply of moisture and cannot prepare for winter, and suffers from winter killing.

"I would trim severely any peach tree. I would trim it for symmetry, for form, and to throw the balance of power with the root at all times. I would trim it because I get better fruit; I would trim it because it is a species of thinning, or method of thinning those peaches. I would thin the fruit of a good crop, because the formation of seed is a draft on the tree and devitalizes it. It cannot mature a large crop of pits, but it can mature a large crop of peaches. If it is compelled to mature a large crop of pits, it is in a state of semi-exhaustion, and the next year perhaps you will hear of the June drought. A tree carefully cultivated, fertilized, thinned and trimmed, never suffers from June drought. That is a pretty strong statement, but I have never seen them suffer from it, and it will add from five to eight degrees to the ability of the tree to stand cold weather, and that frequently makes the difference between an immense profit after a hard, trying winter, and nothing.

"In the purchase of nursery trees, I want to say something to my friends here. I would go 500 miles and dig and tie up every tree personally, in company with the nurseryman, rather than take them from a man who neglects them when he is digging them, exposes them to the wind and sun for an unnecessary length of time, simply because a tree injured in that way will live and live on and take up may be the best of your life and come to next to nothing; while a tree handled just as carefully as you handle cabbage plants, moved to the orchard with the least possible exposure and set carefully, will almost invariably grow and do well in any place where peaches can grow at all.

"So many times we see what appear to be nice trees set out and they never come to anything, they falter and struggle along and die out, or bear poorly, when they do live, and in the next orchard perhaps you will see a fruit tree go right off and grow as if it had nothing else to do, and that is the fault that at the nursery, nine times in ten, and no man can detect it except by the after growth. There is one thing that is practiced in the South that I think is very detrimental to the peach orchard. The temptation to go into an orchard and cultivate it during the winter months, when the weather is favorable, in order to get the work out of the way, is something almost irresistible, and I have seen nothing but what I would consider ill results.

"Another thing that I would not do would be to trim a peach tree after the growth had started, because I have seen nothing but ill results from that. Those are two practices that are quite common—the cultivation of an orchard out of season and pruning it out of season. I was very much pleased to hear the President say here today, speaking of the peach, 'Those who give their orchards good culture and good care, realize good profits, while those who did not received little or nothing,' because I remember very well about four years ago that matter came up before this society, and I thought I was on good safe ground when I said that a peach tree required most excellent culture, and a great many peach growers took exception to it, and told me that I did not understand Illinois soil, which was true; that the peach cultivated well in Illinois soil grew too much and it did not fruit properly. The president as quoted is a witness on my side in that matter. I believe it is a rule that holds good everywhere, that culture pays. I saw in one of the periodicals here a few days ago a gentleman from down in Alabama or Georgia spoke of a theory that he had been reading of regarding the culture of peaches, a theory in intensive culture as compared with non-culture. He said that he had practiced the intensive culture act, and had found that his trees almost invariably bloomed early and got killed, so next year his trees grew later and he got a good crop, which simply demonstrated to him the inability of a great many men to comprehend simple things. If a man starts winter culture, if he forces his trees with his cultivator a few days ahead, he will start the bloom, and then the frost may come along and take them, but a man wants to give a tree a chance to start and then turn in and help all he can continuously until the proper time to stop, letting it mature and leaving it alone.

"Give it some winter cover in the way of a crop. I would say for Illinois regions south of here, cow peas, oats, possibly rye—although I do not like

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rye, it is too hard to get rid of—but something that dies in the winter and leaves the ground in condition to begin culture at the proper time.

"Now, the marketing of fruit has been touched upon here today slightly, and I want to say that I think nine-tenths of the peaches in our country, and a good many from Illinois, are picked either too soon or too late and not at the right time. A peach one-half or two-thirds grown is semi-colored, and if picked will go on and take out the color, but never matures, never gets flavor and never has size. The last forty-eight hours in the development of the peach is what gives it the size and it is a very important factor in selling. A peach should be picked as the greater portion of it turns to yellow or cream white, depending on the variety. It should be picked immediately. It frequently happens that you should go over an orchard every day, every tree, and take out every ripe peach. A great many people gather their crop at two or three pickings, and they find their fruit coming into the market in bad order, and the commission man making perhaps a bad report on it, and they do not like the commission man, while the fault is with them, and as our markets are being better and better supplied each year by competent men, the man who cannot understand this, who cannot understand what the customer wants, must be the sufferer. He has nobody to find fault with but himself.

"I see a great lack everywhere I go of proper preparation for handling crops, even among large orchard growers; they are not well equipped, as a rule, and not prepared to handle a crop when they get it, and then, after working for years and years to get a crop, they lose a large percentage of it from their inability to care for it rightly. There are a number of little things to be considered. The first thing is a good packing house. I have listened to the talk here today on packing apples, and I have thought I would do quite differently from what I heard some say, because I believe in gathering a crop that has got to be packed for the market, and getting it to some central point where skilled help can grade it up, and if necessary, throw out specimens that are not coming to market just right, and get it right where it is under control, where there is some man who understands the business, and I like to be there myself, because then I am satisfied, can grade that fruit and put it in the proper package and handle it just right and with care.

"I do not like to take any fruit off the tree and pour it from one package into another. I like to have an abundance of suitable baskets. I want to say, your old friend and neighbor here, Parker Earle, gave me correct ideas years ago about those things. He came over to our place at one time and got me to go into forty acres of tomatoes for a certain purpose, and he came and superintended the work. You know how careless we generally are in handling tomatoes, but he never would allow a tomato to drop into the basket; every tomato was packed. You may say he has carried it too far, but those tomatoes kept Apples can be destroyed by a little carelessness. When I see a man pouring apples from a basket into a barrel, or when I see a man using mechanical graders for grading peaches I think they do not know what they are doing. All fruit that is fit to go to market should be handled by a man's or woman's fingers, and laid as carefully as eggs, except the necessary settling.

"A few of those details is what a man must get into his head to make a success of peach, or other fruit growing. Someone may say, you cannot do it. If a man would tell Mr. Hale down here in Georgia that he could not handle 2100 acres of peaches and pick them every day, Mr. Hale would say: 'I do do it.' What has been done can be done. I have been on his place when it took 800 pickers to do these things, but he is able to declare a big dividend on big investments, while many others right around him are practically wrecks because they cannot learn how. They cannot learn how, while others are learning and making money. And all that crop in that great orchard is separated into three or four grades, besides the waste, and I have seen them seal cars of peaches every thirty minutes from that packing house, all graded up, everything systematic, and every hour's work shows what was done every day. He will tell you any day how many packages he has packed between ten and eleven o'clock, how many were delivered in the packing house between ten and eleven, or eleven and twelve, or any hour in the day. He has it systematized very easily. Their system is the ticket. Every picker goes into the orchard—I am just detailing what I saw myself—every picker that goes into the orchard takes a supply of tickets with him. For instance, Picker No. 10 has his number plainly marked on the ticket; he sticks 50 or 100 in his pocket whenever he goes in the orchard; when he picks a basket of peaches he just drops his ticket in the basket, and that identifies his work. They go to the packing house; assorters take them up; they say, 'There is a picker that is picking too green, it is No. 10.' The foreman goes to No. 10 and tells him he is picking too green; he goes to No. 10, there is no mistake about it, he is after the right man; he goes after No. 10, and if he cannot learn to pick right he is given some other work, if he is trying to do the right thing. Some men are actually color blind and cannot judge in that matter. In the packing house the packer puts his or her ticket on the top of the package; it goes to the inspector, who covers it; if it is not right it goes back and it is repacked. The pickers' tickets are thrown into a box and the clerk gathers them up every hour, and makes a memorandum. 'Picker so and so,' here is his name on a report sheet, name, Tom Jones, No. 10, this hour gets six, next hour gets ten or fifteen, whatever he picks. If there is an hour out there, we ask Tom what he was doing that hour, but at night we will say he has picked 70 baskets, if you please, while Dick right along side of him has picked 30. We ask Dick why he does not pick as many as Tom. Their record hangs up every night in fifteen minutes after the work is done, and every man can read the record of every other man, and they always gather around to see what was done. The moral effect of that is that there is a strife to get a good record and one sufficient to hold the job, and there is very little talking, very little waste time, very little bad work done in my orchard or Mr. Hale's orchard, where the same methods prevail. Those are simple things, there are dozens of things of that kind, but I want to say that the commercial orchardist of today has got to learn a lot of these things if he makes the business pay, because it is reducing itself more and more every year to a narrow market, and a wise man will search for better methods, and if he is original and practical, so much the better for him.

"Fruit well grown and well packed is half marketed. In my own opinion, I would say no man need worry about his market. His greatest efforts should be to improve himself in his methods, the rest will take care of itself. There is always room for the best, and the market will take plenty of it."

Mr. Augustine: "If you had a thousand bushels of peaches to market and one third of them were second grade, would you expect to realize as much out of the thousand bushels by throwing away the third and selling the first grade, as you would to put the two together and sell the thousand?"

Mr. Morrill: "I would expect more, but that would depend on the condition of the market. Sometimes the seconds are all right, sometimes they are better thrown away. That is something you have got to watch. The scheme of mixing the two grades is something that is entirely foreign to me. I do not know of any good orchard grower who would mix his grades. He would rather throw away the second grade than to pack it in with the first grade. And in my opinion the green fruit and the overripe fruit is equally second. That is something that is very hard for a great many pickers to comprehend, that there should be a very near uniformity of packing, because the overripe peach goes into the market and turning out bad, spoils the whole thing for the packer. That one peach left out would perhaps make a difference of anywhere from ten to twenty-five cents per basket."

Mr. Hartwell: "Do you market only in Chicago?"

Mr. Morrill: "I have one house in Chicago, and while they handle everybody's peaches I watch them very carefully and give them what they can use without breaking the market and the balance goes somewhere else. Next I use Kansas City, St. Paul, Boston, Buffalo, New York; all those are good."

Mr. Hartwell: "My reason for asking this is, there is one grower in Michigan who ships by the carload to one dealer in town and he gets extravagant prices, compared to what other growers get. He packs very carefully and his name is on the basket, as well as in the fruit."

Mr. Morrill: "Well, he is a wise man. There are a great many towns of medium size which take more or less

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peaches, and it is becoming quite a common thing for a grower to have but one dealer. Our best growers are getting rather to ship more or less personally. I watch my market very closely. I have a telephone in my packing house and it is connected with the city system and every day before ten o'clock I get the market reports from the town that I am shipping to; that is, the price that my peaches are selling at that morning, and in return, before four o'clock, if I am shipping any of them, or if I am not going to ship, I wire them what they can expect that day, and it keeps myself and the commission man in very close connection, and sometimes the market is overdone, after two or three days of high prices, until the flood of stuff starts in, the commission men keep one pretty well informed, and if they are the right people, they will warn one. I have not very many varieties, usually not more than two, and I do not like to mix them too much. At the same time, if you make up carloads, you have got to make up what you have got. I have not got very many cars any day. I have not got to that point that Mr. Hale, or Mr. McHenry, or those people have reached."

Mr. Augustine: "Would you aim, in your planting, to have just a few varieties, so as to avoid packing different varieties?"

Mr. Morrill: "I do as much as possible, and more so of late years than I did in the beginning."

President Dunlap: "I would like to ask Mr. Morrill if the system of buying at the shipping point is getting to be more in vogue than doing the regular commission business, shipping consignments?"

Mr. Morrill: "I think that is becoming more and more popular in our country. In some places that is being carried on very largely."

Mr. Baxter: "Please give us the best varieties, and the earliest, in your section."

Mr. Morrill: "Well, in our region the money makers have run—we have the St. Louis (?) seedling, a Michigan production; we never found anything to excel that for first freestone, a white peach, red cheek, very fair sized, and extremely hardy. Following that comes the St. John, not so hardy, but on high gravel location it does well; a magnificent peach, usually makes a high record for season prices; it is a yellow peach, freestone, and right with the St. Louis, or a day or two behind; following that comes a local variety called the Mammoth. 'Mammoth' is a misnomer, it is only medium size, somewhat the form of the Elberta and the equal to it as a shipper, hardier, and a first-class peach. Following that comes the Elberta, which everybody seems to be praising. After that we nave very few peaches that we think good for anything since we became acquainted with the Elberta, and we are all at a loss to find anything to come after the Elberta. We have some Smocks occasionally that pay well and occasionally the Stillwater pays well. The Golden Drop is one of the hardiest peaches that we have. It is a good all round peach, rather small in size, golden yellow, without any cheek, an elegant flavor, and has made me about as much money as any peach that I have, but it runs down in size as it ages, so much so that our people have about quit setting it; in fact, they over-set it for a while."

President Dunlap: "What is the best cling?"

Mr. Morrill: "The Diamond."

President Dunlap: "Do you raise many clings, Mr. Morrill?"

Mr. Morrill: "No, sir; do not want any."

Mr. Augustine: "How about the Champion?"

Mr. Morrill: "The Champion is too soft, too delicate in its texture. The quality is high. If I were to set for home use I would have a few Champions, but they are pale, rot very rapidly, and delicate, bruise to the touch. The Crosby is a very hardy peach; excellent shipper and productive. It is very variable in size, so much so that as a commercial peach we do not like to handle it. I went to Georgia two years ago to watch the Emma, and I have come to the conclusion that I do not think I will set it. In Dr. Wright's orchard near Fort Valley I watched them for two years, about 75 acres of them, and the foliage is so weak, right along side of other kinds that it looks like a sick and dying foliage."

President Dunlap: "Do you know anything about the Gold Dust?"

Mr. Morrill: "I do not know that at all; that is one of those Missouri peaches."

A member: "It is is one of the Stark Brothers'; it is a cling."

Mr. Morrill: "Well, the market does not want any cling if they can help it; they do not buy any clings."

A member: "When is the best time to prune a peach orchard, in your opinion?"

Mr. Morrill: "In this climate, or the climate south of here, I am impressed with the idea that I would prune any time in the winter, but I want to tell you one thing, the pruning of the peach hastens the development of the blossom, and every spring a little quicker than on an unpruned tree, and that puts us up against a difficult proposition in the South. With us, we wait until after the 10th of March, that date being within a few days of the date on which we get our last severe blizzard. Probably within twenty years our most severe blizzard has come within five days on either side of the 10th of March; we get a bad blow-out. After that we go right out, get all the help we can, and get it done before the buds start, if possible. I presume that would apply in Southern Illinois as well. There is this difficulty in pruning. We cut back severely, and we wait till the winter killing-season is over, because it sometimes occurs that the bud is killed largely on the tree, and if you ever noticed, they kill from the base, your live buds will be at the tips, or nearer the tips, at the same time the tip buds are those most liable to be cut off, therefore, as a natural condition, the base buds are at the base of the twig, so when we cut back, and there comes a severe weather, we lose a crop, so we wait until it is over. In 1899 I had an elegant crop of peaches on forty acres, while there was no other crop this side of the Rocky Mountains. I had 12,000 bushels, and they were largely on the tips. Those trees had never been exhausted in any way by over-vitalizing, or under-feeding."

President Dunlap: "That fact, that they were on the tips, and you pruned late, was what saved you, was it not?"

Mr. Morrill: "When we went out to prune, from careful observation we learned where our crop was, and we did not leave much to the pruning knife."

President Dunlap: "Is there any one here who can give a list of peaches for Illinois?"

Mr. Riehl: "I do not care to give a list, because that is largely a matter of taste, and the markets that you want to supply. Our friend Morrill does not want any clings. I do. We of the South know that the clings are some of the best late peaches that we have. If you go into St. Louis market late with good peaches you will get better prices than you will with freestones, because the people know how to handle them. In our own family we prefer the clings, and so you will find in the southern cities where they know how to handle them, that you will get better prices for clings."

The Southern Farmer, published at Athens, Ga., is one of the leading farm papers of the South, containing matter for the farmer, fruit-grower, stock raiser, poultryman, dairyman, etc. Sample copies will be sent free to all readers of the Western Fruit-Grower who ask for same.

Do you want a good pair of pruning shears? If so, see our offer in ad in this issue.

I Will Cure You of

Rheumatism

No pay until you know it.

After 2,000 experiments I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always, at any stage, and forever.

I ask for no money; simply write me a postal and I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month, and if it does what I claim pay your druggist $5.50 for it. If it doesn't I will pay him myself.

I have no samples. Any medicine that can affect Rheumatism with but a few doses must be drugged to the verge of danger. I use no such drugs. It is folly to take them. You must get the disease out of the blood.

My remedy does that even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take this risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. Let me send you an order for the medicine; also a book. Take it for a month, for it won't harm you anyway. If it cures, pay $5.50. I leave that entirely to you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

AGENTS AND DEALERS Wanted!

Above shows our 1902 Improved Sprayer at work in orchard

Write at Once

We want a live agent or dealer in each locality, to canvass among the Fruit-Growers and Farmers to take orders early for RIPPLEY'S 4 and 5-GALLON COMPRESSED AIR SPRAYERS, also ECLIPSE NEW MODEL, 1902 PATTERN, LARGE ORCHARD SPRAYERS. Price $1 to $25, which will fit the pocketbook of all parties.

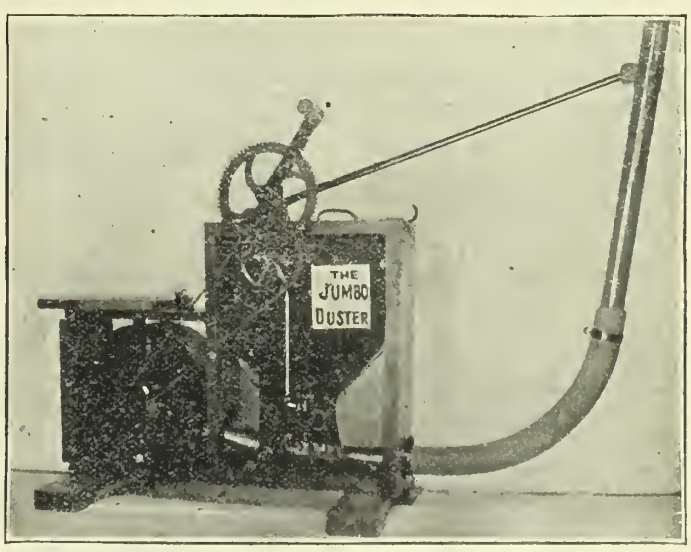
If you wish to sell a line of Sprayers that are sold under guarantee to be the best for the money on the market, write us at once. Or send us $1.50 with good references as to your honesty, and we will send at once a sample 5-GALLON SPRAYER for you to canvass with and take orders. Balance you can pay for in 30 or 60 days. Our agents made from $40 to $250 per month last season selling sprayers. You can do the same, if you will get out and hustle. Any person can sell our sprayers, as they sell on their merits. Every farmer needs one.

Endorsed and Used by

Stark Bros.' Nursery Co., Louisiana, Mo.; Green Bros.' Nursery Co., Rochester, N. Y.; Alpha Nursery Co., Alpha, Ill.; Iowa Seed Co., Des Moines, Iowa; Neb. Seed Co., Omaha, Neb.; Vail Seed Co., Indianapolis, Ind.; Missouri Valley Seed Co., St. Joseph, Mo.; Western Fruit-Grower, St. Joseph, Mo.; National Fruit-Grower, St. Joseph, Mich., and thousands of others. Mail 2c stamp for our 1902 Sprayer and Breeders' Supply Catalogue.

Rippley's No. 7 Lawn, Park and Mountain Sprayers; also Whitewashing Machine, rigged to be shoved by hand or pulled by horse.

Rippley Hardware Co.
Mfgs. Sprayers
Box 217. Grafton, Ill.



THE JUMBO DUSTER

Rapid and effective in the orchard.
Distributes dry insecticides and fungicides to perfection.
Weighs 50 pounds, is 32 inches long, 24 inches high and furnished with four 3-foot 2-inch tubes. Capacity of reservoir, half bushel. For work it is intended to be mounted on the back of a wagon, or we furnish on wheels. Can also supply attachment for dusting four rows of potatoes at a time. Circular will give full information.

LEGGETT & BROTHER
Patentees and Manufacturers,
301 Pearl Street, New York

SEED Drouth Resisting! We have it! Send 2-cent stamp for samples, prices and testimonials to J. B. ARMSTRONG & SONS, Shenandoah, Iowa. CORN

EVERYTHING IN SEEDS Our carefully tested seeds are of unexcelled quality and purity. Most complete seed establishment in the West. Headquarters for Alfalfa, Kaffir Corn, Cane Seed, Millet, Speltz, Macaroni Wheat, and all other Field and Grass Seeds. Introducers and Growers of the Kansas Standard Tomato, the Earliest and Best variety known.
Our new Free Catalog for 1902 is now ready. Write for one. Kansas Seed House F. BARTELDES & CO. Lawrence, Kan.

Spraying for Apple Scab

By Prof. J. C. Blair, Illinois

SPRAYING for the apple scab fungus is now reduced to an exact science. The operation is beyond the experimental stage, and there need be no guess work connected with it. Where we find a grower who is not protecting his trees from this disease by the simple means at hand, or where we find one who still insists that the trouble cannot be corrected by spraying with Bordeaux mixture, we are sure to be dealing with a man who is not progressive and who has not taken the pains to make himself familiar with the work along these lines as published in our experiment station bulletins and current periodicals. What is even worse, he isn't sufficiently progressive to have looked into his neighbor's orchard and to have ascertained why the beautiful crops were harvested. It simply means, too, that such people who are are now in the apple business will be forced sooner or later to retire as a result of natural selection or the "survival of the fittest." It is not my purpose in this brief discussion to question for a moment the advisability of this operation, and the above is the only explanation offered for the fact that there are still some people in this country who pretend to be apple growers and who do not spray for the apple scab disease.

As I said before, spraying for the disease above mentioned is reduced to an exact science as a result of the work accomplished by the practical growers all over this country; men who have put to a severe test the advice given by scientists and experimenters. In surveying the entire field, we may put down the following as the best advice now obtainable on the subject:

Spray two or three times with the Bordeaux mixture. Make the first application just before the flower buds open and just as the leaf buds are unfolding. Make the second application of this solution commencing just as the blossoms fall. Make a third one in two to three weeks. This means that the fruit-grower should watch carefully the blossoming of his trees and the developing of the young fruit. He must use his judgment in making the applications, because the weather conditions are apt to vary each year and in different localities, making ideal conditions for the operation impossible. Some seasons it is not possible to make three applications, but the applications which are made must be all the more thorough. Light rains should not be allowed to interfere with the applications of the fungicide at any time. The grower should bear in mind that, other things being equal, the moister and warmer the air, the greater chance there is for the developing of the disease. Persistency and thoroughness, then, should be the grower's motto when following this work. He must also have the best material obtainable, and it must be properly mixed. The machinery, too, should be in perfect working order. This latter point is one which should be given attention immediately. The pump should be overhauled now and any needed repairs made before the spring work commences.

Bordeaux mixture is now the recognized specific for the apple scab. It should be made in the proportion of four pounds of lime, and fifty gallons of water. Copper sulphate should be bought at this season of the year and in sufficiently large quantities to satisfy the grower's demands for the year. He can buy it cheaper in quantities. The lime should be purchased from the best dealers and it should not be air-slaked. Only good rock lime should be used. The sulphate and the lime are regular commercial articles, and the grower is reasonably sure of securing a staple article when purchasing these.

The next things to be provided are the mixing tanks. Have one tank in which the lime solution can be made and one in which the copper sulphate solution is to be made. The commercial fruit grower, at least, will find it greatly to his advantage during the spraying season to have stock solutions of copper sulphate and lime constantly on hand. The copper sulphate does not deteriorate when in solution, neither does the lime to any appreciable extent if covered with water. On the other hand, the fresher the lime solution, the better the results. It should however, not be used the day it is prepared. It is best to have it made up the day previous to mixing the same with copper sulphate. These solutions —that of the lime and the copper sulphate—should be contained in vessels which are in close proximity to two other vessels with a capacity of at least one hundred gallons each, and which are elevated ten or twelve feet above the point where the spray tank is to be filled.

Slake the lime carefully by the addition of the necessary quantity of water. For example, slake sixteen pounds of lime in a convenient vessel, and see that the process of slaking is not interfered with by the addition of too great an amount of water. When slaked place it in one of the elevated tanks of one hundred gallons, filling up the same with water. Next place sixteen pounds of dissolved copper sulphate into the second elevated tank. This dissolving has been accomplished the previous night by placing the bluestone in a basket or sack which is allowed to hang suspended in the top of a vessel (barrel) of water. If it is necessary to make the solution more quickly, then use hot water. When the sixteen pounds of coper sulphate have been placed in the tank referred to above, fill the same with water. This gives us two diluted solutions of copper sulphate and of lime. Allow these to flow together by hose or pipe into the third mixing tank or directly into the spray tank. Do not have too large a stream, and if these are fan-shaped so much the better. This process of mixing gives perfect solution of Bordeaux which will stay suspended a much greater length of time than when the concentrated solutions are mixed together and then afterwards diluted. When Bordeaux is prepared by placing the necessary amount of stock solutions directly into the spray tank, then the sufficient quantity of water added, trouble is almost sure to result. The solution is different. At least Bordeaux mixture thus prepared injures foliage, while if it is prepared in the way first indicated good results are sure to be obtained.

Of course this solution takes into account only the fact that the grower is spraying for the apple scab fungus. It should be borne in mind, however, that the codling moth, and perhaps other insects, such as the bud moth and canker worm, have to be reckoned with at this same season. In order, therefore, to "kill two birds with one stone," add Paris green, which has been previously mixed with water by placing the same in a bottle or jug with some water, and thoroughly agitated until every particle of the dry powder is brought into contact with the water. One pound of Paris green is sufficient for the 200 gallons of Bordeaux mixture above referred to.

As the solutions pass into the tank they should be strained through a wire strainer 12 inches in diameter, with brass wire cloth mesh 20 wires to the inch.

See that a good force is maintained; a pressure of not less than 60 pounds to the square inch is important. Use a fine nozzle and apply the solution in the form of a fine mist, thoroughly covering the leaves and twigs. Do not put too much solution on the plants. More harm than good is done by too heavy an application. If the leaves begin to drip, too much solution has been applied, and danger will result therefrom. The leaves will be burned by the precipitates gathering in blotches. Do not hurry from one tree to another. See that every part of the tree on that side has been covered before the next tree is commenced upon.

While it is highly important that a good mixture of Bordeaux be made and that it is properly applied, it is also of the greatest importance that the machinery and appliances necessary for

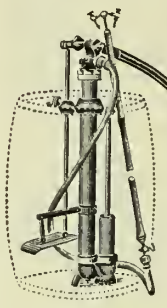
SPRAYING PUMPS

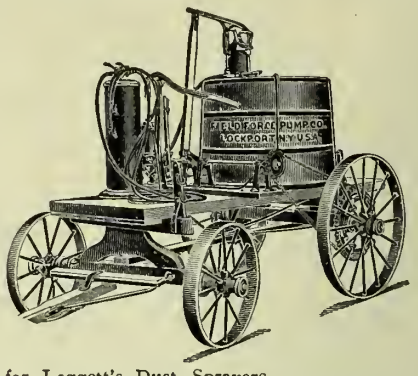
Hurry your order and have pump ready when you need it.

Spraying means success. You must spray, but it is necessary that the work be well done. Start right with a good pump. We can furnish you any size from a small hand atomizer to the finest wagon pump.

We are General Western Distributors for Morrill & Morley's and Field Force Pumps —they are the cream of all good sprayers.

Thirty Styles--both Liquid and Powder



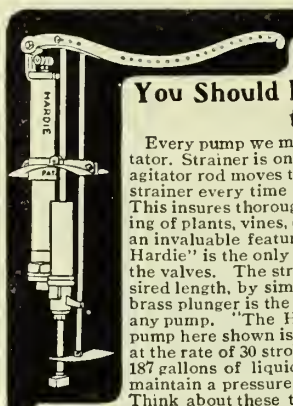


We are General Agents for Leggett's Dust Sprayers.

Write us about the matter—we want to send you our illustrated catalogue and prices. Deliver to you at factory prices.

We can furnish you all kinds of pure spraying chemicals.

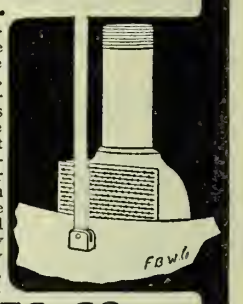
Missouri Valley Seed Co. 418 Edmond Street St. Joseph, Mo.



A FEW REASONS WHY

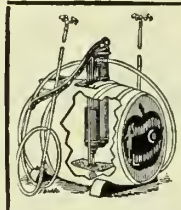
You Should Buy "The Hardie" Spray Pump in Preference to One of Any Other Make.

Every pump we make is supplied with our strainer and agitator. Strainer is on side of extreme end of suction pipe. The agitator rod moves the agitator up and down in front of the strainer every time the pump handle is worked. See cuts. This insures thorough mixing and prevents burning or scalding of plants, vines, etc., from heavy deposits of poison. It is an invaluable feature in painting and whitewashing. "The Hardie" is the only pump that requires no wrench to get at the valves. The stroke may be instantly adjusted to any desired length, by simply changing a pin in the handle. Our brass plunger is the most simple, durable and serviceable on any pump. "The Hardie" is a large capacity pump. The pump here shown is our No. 7. When this pump is worked at the rate of 30 strokes per minute it will reduce to fine spray 187 gallons of liquid per hour. All the "Hardie's" easily maintain a pressure of 100 pounds with two nozzles open. Think about these things and then send for our free catalog.



THE HARDIE SPRAY PUMP MFG. CO.,

51 Larned Street, Detroit, Michigan.



Government Tests

have proven that 80 per cent of all the unsprayed fruits going to waste might be marketed at top prices if sprayed with a

SPRAMOTOR

Nine-tenths of the labor can be saved where much whitewashing or painting is necessary. We want you to know why Spramotors will save your fruit while ordinary sprayers fail. The buying of a Sprayer is the matter of a moment, yet a mistake is a costly experience. It means the loss of your labor and chemical, and affects your profits. We want you to know why the Spramotor was awarded First Place in the Spraying Contest, and the Gold Medal at the Pan American Exposition. We want you to know why Sprayers should be made of good brass. We want you to know why Spramotors have more points of excellence than all others combined. We want to supply you with the facts, and help you to avoid mistakes. Will you let us try? Send for our Treatise, "A Gold Mine on Your Farm," on the diseases of fruit trees and their remedies. It's Free.

THE SPRAMOTOR

SPRAMOTOR CO., BUFFALO, N. Y. and LONDON, CAN.

For Wholesale Spraying

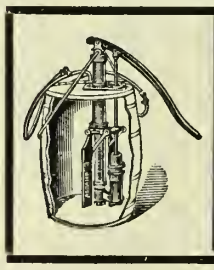
in large commercial orchards where the saving of time, labor and material is a necessity, to say nothing of having the spraying done in the right "nick of time" nothing equals

This Orchard Monarch

—note the large storage chamber in front. A convenient pump operated by chain sprocket from rear wheel raises air pressure to 150 lbs. With 12 gallons of liquid in chamber this will work two Vermoral Nozzles at full capacity long enough to spray the largest tree. Automatic agitators keep liquid thoroughly stirred up. Brushes clean suction strainers automatically every instant. No burning or scalding of foliage. Sold complete as shown in cut. We make the Famous Empire King Barrel Sprayer and full line of smaller machines.

Send for free catalog and opinions of people who used it last year.

FIELD FORCE PUMP CO., 35 Market St., Lockport, N. Y.



Goulds Spray Pumps

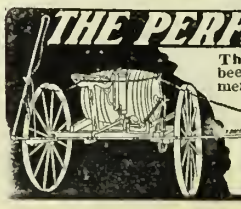
POMONA best barrel pump. Our SENTINEL and MONARCH pumps are of larger capacity. All guaranteed satisfactory or money refunded. Ask your dealer or write us.

For sale by N. O. Nelson Mfg Co. St. Louis, Mo.

The Goulds Mfg. Co., Seneca Falls, N.Y.

"How to Spray, When to pray," valuable book—free

THE PERFECTION SIX ROW SPRAYER



The Perfection Sprayer is not the product of a theorist. Making sprayers has been his chief employment for the last twelve years. He has examined and experimented with and made more large capacity, power sprayers than any other man in the U. S. The Perfection Six Row is his final triumph. Sprays six rows of potatoes or vines at one time. Can be used either by hand or horse power. Easily adjusted for vegetables, shrubs or trees. Sprays Bordeaux and all other mixtures without trouble or waste.

Full descriptive catalogue sent free. Ask for it.

Thomas Peppler, Box 40, Hightstown, N. J.

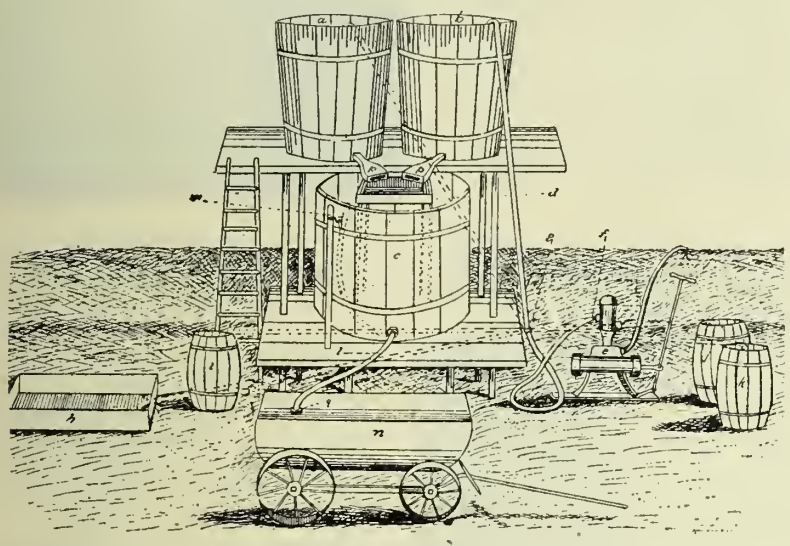
Also manufactures the improved Riod's Plows and Furrowers

A Plan for Mixing Spraying Solutions in Large Quantities

To illustrate Prof. Blair's idea in mixing Bordeaux mixture we present herewith an engraving showing the system devised by R. A. Simpson of H. M. Simpson & Sons, Vincinnes, Ind., who have large orchards near Parkersburg, Ill. Of course this outfit is intended for large orchards, where there is much spraying to be done. Mr. Simpson describes this system as follows:

A and B represent diluting tanks of 130 gallons capacity each. C represents a mixing tank of 250 gallons capacity. D is a very fine strainer (brass cloth wire, 20 meshes to the inch) attached to the bottom of a wooden box, which is supported by four legs long enough to reach to the bottom of the mixing tank. E is a cylinder force-pump capable of throwing a two-inch stream. F-G is a piece of 2-inch hose to which a pipe (g) to (b) with a goose-neck is attached. H is a box for slacking lime. I is a barrel of milk of lime made up from the lime paste prepared in H, first run through a coarse steve. J and K are barrels filled with copper sulphate stock solution. L is a piece of 2½-inch hose, through which the mixture from C runs to spray tank N. M is a stake with a hook or other contrivance at its upper end to hold the end of the hose (l) above the level of the liquid in the mixing tank. PP are spouts specially devised for throwing the liquids in wide, flat streams. The pipe G to B can be moved by a man standing on the ground, to either A, B, H, I, J, K, or any place within reach; thus allowing easy distribution of water to any point in the system. We get our water supply from ponds. The mixing tank (c) must be so placed that the bottom will be a little higher than the top of the spray tank (n) when the latter is driven up to be filled. The bottoms of the tanks A and B must also be higher than the top of C. It is also advantageous to have the bottoms of the tanks sloping forward, to allow of draining out the liquids. When the system is put into operation, the hose (l) is hooked into the stake (m). If 4-4 strength of Bordeaux is being used and the spray tanks hold 200 gallons, lime milk containing 16 pounds of lime is taken from I and put into the diluting tank A. Likewise, 16 gallons of the stock solution, containing 16 pounds of copper sulphate, in J and K are put into diluting tank B. Then 100 gallons of water are pumped up into each of the diluting tanks. Then the diluted solutions are thoroughly stirred before turning on the faucets (pp). The latter are so placed that the thin, broad streams will come together and mix as they fall through the strainer (d) into the mixing tank (c). The mixture in C is then stirred, tested and rectified if necessary. As soon as this is done the driver of the spray tank lowers the hose L, thus allowing the mixture to flow into the tank at Q where another strainer is placed. If there should happen to be no empty spray tank in at the time the mixture is made up, the diluting tanks B and B are again charged as before, ready for another full tank mixture. Then while the empty spray wagon is being filled, the faucets (pp) can be turned on without waiting for the mixing tank to become empty. Thus two spray tanks can be filled without delay. We find that in this way one of our 200-gallon tanks can be filled in three minutes, and as soon as one wagon pulls out there is a full tank of mixture ready for the second.

The illustration and this description are from Bulletin No. 68, of the Illinois Experiment Station, just issued.



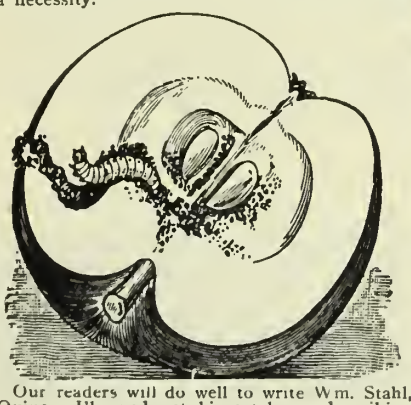
the work be in good state of repair and conveniently operated. At the Illinois Station we have one of the most convenient spraying outfits I have yet seen operated. The tank is mounted on light and yet substantial running-gears, with wheels having five-inch tires. The front wheels are sufficiently low to permit the making of a short turn, which is often desirable in moving about the orchard. The tank is a 200-gallon tank and when filled is easily handled by one horse of 1,450 pounds weight. The lines of hose pass through loops at the rear of the spraying tank and are thereby prevented from being caught in the wheels. Among the best features of this outfit are the tool box and the platform on which the operator stands. The tool box is provided with hammer, pipe wrench, hose couplers, reducers, extra nozzles, extra hose, etc.—in short, everything to make necessary repairs on any part of the apparatus when circumstances demand. The tool box also serves as a seat for the driver in going to and from the orchard. The platform is placed at just the right distance from the lever so that a man who does the pumping can get the greatest purchase on the handle with the least amount of stooping. He is also constantly facing the horse, thus rendering driving convenient. J. C. BLAIR.

Horticulturist Illinois Experiment Station.

Elsewhere in this issue will be found the ad of J. B. Beagley, Sibley, Ill., who has seed corn for sale. Mr. Beagley is well known as being one of the best men in the seed-corn business in the country. Last year he used space in the Western Fruit-Grower and furnished corn for many of our readers—in fact, he says the Western Fruit-Grower stood second in the list of papers which he used. Owing to the drouth of last season there is a scarcity of good seed corn, and our readers should see Mr. Beagley's ad and write at once. Mention Western Fruit-Grower when writing.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contain much valuable information, and may be had for the asking.

SPRAY OR SURRENDER

That is the ultimatum that the Insects and Fungi have served on every fruit-grower of America. If you do not heed the warning you will not get profits from your orchards.

Every man who sprays intelligently, at the proper time, finds it the most profitable operation on the farm.

The Eclipse Spray Pump

and outfits are as much superior to the common pumps as the modern self-binder is to the old grain cradle.

THE ECLIPSE SPRAY PUMPS have met and defeat-feated in public contest every pump in the world and have never been defeated; are guaranteed to save 50 per cent in labor over any other make and to furnish more hard service for $1.00 than any others can give for $2.00 invested. The largest and best orchards in the world are being outfitted with the "Eclipse." Send for descriptive catalogue No. 3 for prices and testimonials.

Our Improvememts for 1902 make our Pumps Absolutely Perfect

MORRILL & MORLEY, Benton Harbor, Mich.

Crimson Winter Rhubarb

Not six days, but **Six Months Earlier** than any other variety

Three times as productive. Best possible quality. Absolutely perpetual if kept from severe freezing. The best new vegetable offered during the past twenty years. Also new Fruits and Flowers, and the Grand New Shasta Daisy. Send for price list.

Burbank's Experimental Farms

Luther Burbank
Santa Rosa, California

Lee's Summit Star Nurseries

BARGAINS The demand for nursery stock is fickle, and some of our choice fruits and flowers have been overlooked leaving a surplus on our hands. We are going to offer these at bargain prices as collections. Our "Collection List" will go into detail—ask for it.

We still have a good supply of stock in general assortment and like to figure on your wants. Catalogue free.

M. BUTTERFIELD & SON
Lee's Summit, Missouri.

SPRAYING

Start Right.
Success depends upon it.
With the "incomparable"
Bordeaux NOZZLE,

and one of our "World's best" spraying outfits, you will save 75 per cent of the usual loss from insects, and disease. We save money for you. Makes Emulsion while pumping. Kills insects and lice on chickens and animals. Made only by

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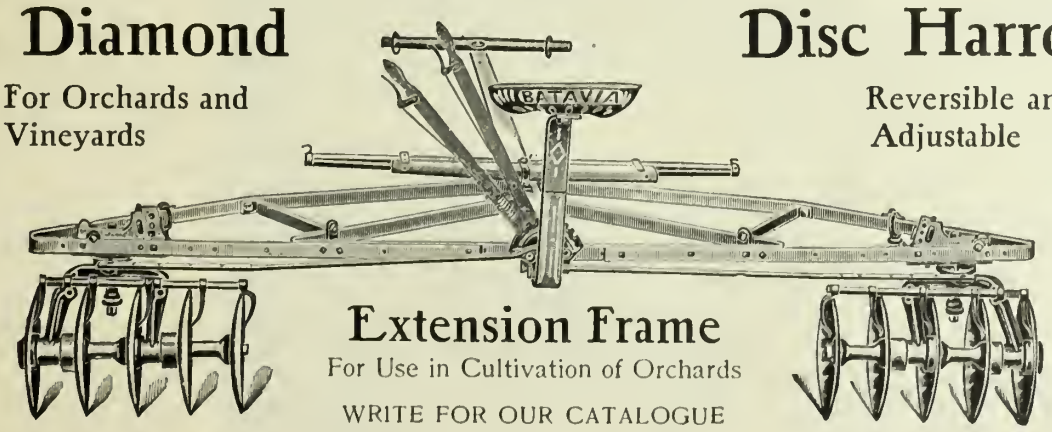

Extension Frame
For Use in Cultivation of Orchards

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The Johnston Harvester Co.

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THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.
ST. JOSEPH, MO.

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W. G. CAMPBELL, JR.....General Manager
JAMES M. IRVINE.....Managing Editor

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From the Chicago American we clip the following lay sermon, which expresses much truth in a few words. There is much food for thought in the paragraph — not that readers of the Western Fruit-Grower are ever in this condition, for we believe that not one ever falls to this level. Fruit-growers are singularly free from the drink habit, but sometimes we have too little pity for the drunken one, too little sorrow for those dependent upon him for love and support. The American says:

"How often have you seen a drunken man stagger along the street? His clothes are soiled from falling, his face is bruised, his eyes are dull. Sometimes he curses the boys that tease him. Sometimes he tries to smile, in a drunken effort to placate pitiless childish cruelty. His body, worn out, can stand no more, and he mumbles that he is going home. The children persecute him, throw things at him, laugh at him and run ahead of him. Grown men and women, too, often laugh with the children, nudge each other, and actually find something humorous in the sight of a human being sunk below the lowest animal. The sight of a drunken man going home should make every other man and woman sad and sympathetic, and, horrible as the sight is, it should be useful by inspiring those who see it with a resolution to avoid and to help others to avoid that man's fate.

"That reeling drunkard is going home. He is going home to children who are afraid of him; to a mother whose life he has made miserable. He is going home, taking with him the worst curse in the world—to suffer bitter remorse himself after having inflicted suffering on those whom he should protect. And, as he goes home, men and women, knowing what the home-coming means, laugh at him and enjoy the sight. In the olden days, in the arena, it occasionally happened that brothers were set to fight each other. When they refused to fight they were forced to it by red-hot irons applied to their backs. We have progressed beyond the moral condition of human beings guilty of such brutality as that. But we cannot call ourselves civilized while our imaginations and sympathies are so dull that the reeling drunkard is thought to be a funny spectacle."

The Athens (Texas) Truck Growers' Association has inaugurated a new departure, which will commend itself to everyone. It has employed A. K. Dixon, an authority on tomato culture, to give instructions to the members in planting, growing and marketing tomatoes. Mr. Dixon will receive $400 for the tomato season—and it will be money well spent, we predict. About 100 acres will be planted to tomatoes, and Mr. Dixon will visit the fields of the members and give them directions in preparing hotbeds and cold frames, cultivation and staking of vines, etc. He is also preparing hotbeds to raise plants for many members of the association, and will charge $1 per thousand for the plants ready for the cold frame. Commercial fertilizer will be used on the tomato plantations. The business men of the community have shown their interest in the enterprise by raising almost $300 of the sum required to pay the salary of the instructor. This is practical educational work taken to those who cannot avail themselves of a course at a good agricultural school. It would have been better for these growers to have received this training, in connection with training in other lines, at a good agricultural school, we believe, but being unable to do this, their plan is the next best one. The time is near at hand when fruit farmers will adopt similar courses, and such subjects as propagation of trees, planting and pruning, spraying, etc., will be discussed in the orchards. This is a step in the right direction, and should be encouraged.

We take off our hat to Prof. E. S. Goff of the Wisconsin Experiment Station. At a time when it is thought to be the proper thing for everyone not living in Missouri, Illinois, Kansas or Arkansas to condemn the Ben Davis apple, the professor says:

"We Wisconsin people have been very free to denounce the Ben Davis apple because of its lack of good quality, and yet what would we have done this season without the Ben Davis? Probably three-fourths of the apples that have come to the Madison market since November have been of this variety; and only this variety has been sold at a price that a poor man could afford to pay. And, with the exception of a very few apples of other varieties that have sold at the rate of above $7 per barrel, I have been able to find no apples of their kind except the stigmatized Ben Davis. There is an old proverb, 'Speak well of the bridge that carries you safely over;' that will apply pretty well here. Whatever may be said against the Ben Davis, it 'gets there,' and we can have apples, when, except for it, most of us would have had to do without. Driven by poverty to accept this fourth-rate apple, I have made its acquantance better than ever before, and must confess that my contempt for it has not increased with familiarity. At its best, its quality will hold its own with most northwestern apples. It is fine-grained, tender when ripe, and what flavor it has is appleish. It lacks juice, which may be the secret of its good keeping. Its skin is thinner than in some other varieties that rank much higher as dessert apples. It is not much given to scab—and has that prime requisite of success, good looks. Of course the Ben Davis is not a Wisconsin apple, either by birth or adoption, and it can never be, but until we can offer something better why should we condemn it?"

A bill has been introduced in Congress to enlarge the powers of the Interstate Commerce Commission. This is intended to give the commission the power to order an adjustment of rates in cases where they discriminate against any city or section. This power should be given the commission, for it avails but little if, after finding an unjust discrimination exists in any case, the commission has no power to effect an adjustment. It does not, as has been claimed, confer "arbitrary power to fix rates" upon the commission, but simply authorizes it to prevent unjust discrimination against any section. Farmers are much interested in this proposed amendment. For instance, it has been shown that the freight rate on cheese from Wisconsin points to Chicago is forty cents per hundred pounds, as against thirty cents from New York cheese-shipping centers. And Wisconsin is only 210 to 220 miles away, while the New York points are 550 to 580 miles distant. The same discrimination exists in other cases, and the farmers are naturally interested. At present the commission has no power to order an adjustment of the rates, and it is to remedy this serious defect in the law that the present amendement is intended.

We note with pleasure the increasing number of associations which are advertising for the sale of their produce on track at shipping station. Recently, in an exchange devoted to the produce trade, we noted about half a dozen cases where growers' associations had ads reading like this: "We have 100 acres of tomatoes which will be ready for market soon, and are ready to receive bids for the same, delivered at any shipping station." "Our association has 40 acres of strawberries which promise a good crop. Same will be sold at shipping station, and we are willing to allow a good margin of profit to reliable buyers. Address Secretary." Now, all this simply goes to show that there is better system in the marketing of produce of all kinds. Large growers, like J. H. Hale, J. G. McNair and others, can ship their own crops, but the smaller ones must combine, and happy the time when they sell all their crops at shipping station and receive the cash as soon as the produce is delivered.

At the present time it seems that peaches have been pretty badly injured all over the country, from the Ohio river north. The Michigan crop has been cut short, and in some cases entirely destroyed; in New York state many orchards were almost ruined by a heavy snow which broke the trees; in Illinois, part of Missouri and Kansas, and north of these states, the crop was damaged by the cold snap in December. A subscriber in Ohio, however, reports prospects as excellent in his neighborhood; Koshkanong, Mo., reports say the crop is not seriously injured there, and at Lowell, Ark., there will be a full crop, unless the buds are killed after this date. Peaches will likely bring good prices this year, and arrangements should be made to carefully handle the fruit—where there is any.

We are gratified to receive words of commendation from our readers for removed from our place of publication. We now have subscribers in Italy, Germany, India, China, Mexico, Costa Rica, Hawaii and other foreign countries. Our list is growing remarkably fast in Eastern states, and some of our most encouraging letters come from our friends there. From the far West the same good reports come. J. H. Lawrence, Mission City, B. C., Canada, writes: "I take six papers on fruit-growing, but yours leads them all." And with these letters are coming hundreds of new subscribers, showing that our friends show their appdeciation by their works. And for all of this we are truly grateful.

The United States Department of Agriculture has recognized the importance of the Missouri fruit experiment station at Mountain Grove, Mo., and will send an expert to that station to study diseases of fruits. Particular attention will be paid to the subject of bitter rot. This is a good move, for it will give Prof. Stinson, in charge of the station, time to devote more time to the other work of the station, and will at the same time likely bring much light upon the subject of bitter rot. We presume the general work of the department will be under the direction of Prof Herman von Schrenck of St. Louis, who has had charge of it for the past two seasons.

D. A. ROBNETT
President Missouri State Horticultural Society

Horticulture at the St. Louis World's Fair

An advance copy of the Classification Book for the Louisiana Purchase Exposition at St. Louis in 1903 has been received. Fifty-three pages are required for a mere enumeration of the groups and classes of exhibits.

The seven groups of horticulture, and the different groups into which the groups are divided are as follows:

Appliances and Methods of Pomology, Viticulture, Floriculture and Arboriculture. — Tools for gardeners and nurserymen: Spades, picks hoes, lawn mowers, garden rollers. Tools for pruning, grafting, gathering, packing and transporting produce: Pruning and grafting knives, ladders; watering apparatus. Apparatus and objects for ornamenting gardens: Vases, pots, chairs, seats, fountains, labels, etc. Glass houses and their accessories: Heating apparatus, mattings, etc. Aquariums for aquatic plants: Ferneries, etc., for use in dwellings. Garden architecture: Plans, drawings, models, books, pictures, etc.

Appliances and Methods of Viticulture.—Types of buildings used in connection with viticulture. Implements used in the culture of the vine. Implements for deep plowing: Vine plows, hoes, tools for grafting, pruning, gathering, etc. Collection of vines. Appliances for vineyards: Wine sheds and cellars; vehicles, grape pickers, wine presses, etc. Methods of wine-making. Appliances and materials for preserving wines. Ferments. Diseases of vines and methods of checking them.

Pomology.—Pomaceous and stone fruits: Apples, pears, plums, peaches, quinces, cherries, apricots, nectarines, etc. Citrus fruits: Oranges, lemons, limes, shaddocks, pomelos, etc. Tropical and sub-tropical fruits: Pineapples, bananas, guaves, mangos, tamarinds, figs, olives, sapodillas, etc. Small fruits: Strawberries, raspberries, blackberries, dewberries, gooseberries, currants, etc. Nuts: Almonds, pecans, hickory nuts, chestnuts, filberts, walnuts, etc. Casts and models of fruit in wax, plaster, etc.

Trees, Shrubs, Ornamental Plants and Flowers.—Ornamental standard trees, seedlings or grafted. Ornamental shrubs, deciduous or evergreen. Plants for the park or for the garden. Herbaceous plants grown in open ground: Dahlias, chrysanthemums, etc. Masses and baskets of flowers. Bouquets of natural flowers.

Plants of the Conservatory.—Specimens of culture used in different countries for use or for ornament. Forced culture of vegetables and fruits; specimens of products. Specimens and varieties cultivated for ornament; plants from houses of moderate temperature; plants from hothouses.

Seeds and Plants for Gardens and Nurseries.—Collections of seeds of vegetables. Young trees, seedlings or grafted.

Arboriculture and Fruit Culture.—Ornamental trees and shrubs. Methods of propagating, growing, training, pruning, etc. Fruit trees. Methods of propagating, planting, growing, training, pruning, etc. The vine: Methods of propagating, planting, training, pruning, etc. Small fruits: Strawberries, blackberries, raspberries, etc. Methods of propagating, growing, transplanting, training, etc.

Luther Burbank
The Man, His Methods and His Achievements.

LUTHER BURBANK and his work are always interesting subjects to every lover of fruits and flowers, and therefore a few notes from a splendid article by Prof. E. J. Wickson of California on this subject will be appreciated by readers of the Western Fruit-Grower. The article was first published in the Sunset Magazine, San Francisco, to which we are indebted for the use of the illustrations and the right to use the extracts we have made. Prof Wickson's article is most interesting, in its entirety, and it is really a hard matter to decide what to publish and what to leave out in making our extracts.

Luther Burbank was born in Lancaster, Mass., March 7, 1849 and was the thirteenth of fifteen children born to Samuel Walton Burbank by three marriages. Mr. Burbank evidently inherited his horticultural traits from his mother's family, for his mother's father was Peter Goff Ross, a grower of seedling grapes, and on his mother's side also were the Burpees, well known in horticultural annals. The boy was slight of build, rather serious in manner and of retiring disposition in his younger days, and at a very early age began to make playmates of plants, and his doll was a cactus plant, fondly carried about until an accident shattered the plant and a young heart at one operation. When quite a boy Luther began in the shop of the Ames Plow Company, and when sixteen years of age he conceived and developed an improvement in the wood-working machinery of the factory which was so valuable that the owners offered to multiply his wages more than twenty-five times if he would remain and give the concern the product of his work as an inventor. He decided, however, that the society of plants was worth more to him than shop work, even at its highest levels, and he soon entered upon a horticultural career on the foundation of a seed and plant business.

The first great success of Mr. Burbank was the origination of the potato which bears his name. In 1875, after he had become convinced of the advantages which California offered to one in his line of work, Mr. Burbank, with few resources except a resolute, confident spirit and ten Burbank potatoes, which he reserved by agreement when the whole stock of the first great achievement of his was sold to a leading Massachusetts seedsman, moved to the Golden Gate state. His first business announcement in California was an offer of new potatoes, which were speedily bought by those interested.

And thus Mr. Burbank began his wonderful work, and thus he came to California.

The little cottage in which Mr. Burbank has long made his home for himself and mother, a lady nearly ninety, is within the corporate limits of Santa Rosa. Here he purchased four acres in 1878, and upon it has maintained his residence and business headquarters until the present time. Here, too, part of his propagation has been done, though he owns other lands, a few miles away, of lighter soil and warmer exposure, which because of superior fitness, have been used for his largest cultural work. All around the dwelling are areas of lawn and beds of plants, the latter being in many cases the working collection of the propagator, for there are many enclosures of small area which contain an almost incredible number of plants. In one case, for instance, forty species of golden rod are grouped for close study of their characteristic growth and bloom.

All the world makes contribution to these study tables of Mr. Burbank, and the visitor to the home takes particular delight in them.

Contiguous to the dwelling are greenhouses, potting sheds and barn—exceeding in cost the owner's house, which is an orthodox arrangement for farm structures, says Prof. Wickson. Along the street front are six trees of great beauty, a hybrid of English and California black walnut—the first cross-bred tree of Mr. Burbank's growing.

In his modest home and in the simple arrangements with which Mr. Burbank carries on his notable work, the discerning visitor can find many suggestions of the spirit and disposition of the man. He utterly neglects the impression upon people which even what might be considered the proper paraphernalia of his work would make. He grows no show plants; he gives no prominence to rare things; he indulges in no display of instruments and accessories which one who works so largely by plant surgery could excusably delight in. He shows no library, no laboratory, no case of medals, and no certificates. Even the visiting expert is misled into the conclusion that, because he is ushered into no library, Mr. Burbank is neglectful of the garnered wisdom of the ages. Such an error is the fault of the observer, for he is widely read in biological science in all its leading lines, but he approaches no work by the compilation route. His strange insight and memory enable him instantly to seize upon and retain the facts and principles which he desires for direct uses, or as contributions to the fullness of his conceptions. For many years he read largely to doubt and disprove, for his experience and observation led him to different conclusions. This was only natural because his work was in advance of the records; but he still diligently sought for gleams of truth available to him in current scientific literature and was strengthened and encouraged thereby.

Of Mr. Burbank's personal appearance Prof. Wickson says: "He is of medium stature and rather slender form, light eyes and dark hair, now rapidly running to silver. His countenance is very mobile, lighting up quickly and as quickly receding to the seriousness of earnest attention, only to rekindle with a smile or relax into a laugh, if the subject be in the lighter vein. He is exceedingly quick in apprehension, seeming to anticipate the speaker, but never intruding upon his speech. There is always a suggestion of shyness in his manner and there is ever present a deep respectfulness."

Prof. Wickson quotes a tribute paid to Mr. Burbank by his most intimate friend, S. F. Leib, president of the board of trustees of Sanford University: "Friendship has arisen between us which makes us like brothers. I think I know as nearly the innermost part of his life as any other man in existence. I have never known a nature more full of absolute sweetness. He is absolutely honorable in every way, and is honest to a fault. He lives what is termed in the parlance of the day, a strenuous life, far too much so for his physical endurance. He is an intense man, a man who carefully plans for results, and then works for their fulfillment with a patience that exceeds that of Job himself. It may be a question of years to arrive at a single result. Necessarily before arriving at success in seeking to accomplish a given result, he must meet with many failures, but nothing seems to daunt him until success crowns his efforts."

Surely this is a splendid tribute to this man. Next month we hope to present some facts in regard to Mr. Burbank's work and how it is wrought.

Some one asked the question some time ago: "How to get rid of gophers?" Get a few raisins and some pulverized strychnine; split the raisin and insert a small quantity of strychnine; then pinch the raisin together. It is now ready for use. Take a small, sharp stick and stick it in the ground about where the gophers have worked up dirt, and when you have found his tunnel, pull out the stick and drop one or two raisins in the hole. Cover the hole with a small clod of dirt—this leaves the tunnel free of dirt and dark. Mr. Gopher eats the raisin and dies. With a handful of poisoned raisins you can destroy the gophers on a farm in a short time, by going over it two or three times. F. H. NORCOM.

Yukon, Oklahoma.

The ad of the Johnston Harvester Co., Batavia, N. Y., in this issue of the Western Fruit-Grower shows a disc harrow which is just the thing for orchard cultivation. It is adjustable, and can be extended so as to work up under the limbs of trees. There is no need to describe the implement further, for the illustration shows just how it looks and works. All will admit the necessity for thorough cultivation in the apple orchard and every grower should prepare at once to cultivate well during the coming season. See the ad of the Johnston Harvester Co., and when you write mention the Western Fruit-Grower.

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PRIZE COLLECTION OF BUCKBEES BEST SEEDS
contains Radish, 17 sorts; Lettuce, 12 sorts; Tomatoes, 11 rare; Turnips, 7 beauties; Onions, 8 fine ones; 55 sorts in all, will be sent you, with my new seed growers Guide Book
FREE
If you mention this paper and send 10 cents to help cover postage and packing. Send to-day.
H. W. BUCKBEE, Rockford Seed Farms, Rockford, Ill. Dep't L-31.

GOOD SEEDS
Send at Once
25 cts. for our Great Garden Seed Collection. 10 full size packages of finest vegetables. A larger collection of 25 varieties for 50c.
25 cts. for our Beautiful Flower Seed Collection. 10 full size packages of beautiful flowers. A larger collection of 25 varieties for 50c.
Both 25c collections for 40c, or both 50c col. for 75c. This is positively the greatest seed offer made. Send promptly, while stock lasts. Fine Illustrated catalog sent FREE.
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If you mention this paper in writing we will send Free enough seed to plant row 100 feet long, also our illustrated catalogue of farm and garden seeds free.
Iowa Seed Company, Des Moines, Iowa.

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For 16 Cents Postpaid
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65 gorgeously beautiful flower seeds,
In all 150 kinds positively furnishing bushels of charming flowers and lots and lots of choice vegetables, together with our great catalogue telling all about Teosinte and Pea Oat and Bromus and Speltz, onion seed at 60c. a pound, etc., all only for 16c. in stamps. Write to-day.
JOHN A. SALZER SEED CO., La Crosse, Wis.

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Largest growers in America of Vegetable, Field and Flower Seeds.

Strawberry Gossip

By William S. Crawford

JOSEPH HARRIS, the great agricultural writer, is said to have shown a visitor over his farm and ended the trip at his office with the remark, "Here's where I make my money."

It is brain work that pays. The manual labor of a good fruit-grower is, as a rule, worth a little more than that of a hired man, because he has more interest in his work. Most of what he makes in a year above laborer's wages for his own work is the income from his investment and the compensation for his thinking, often the latter more than the former. Considerable of this brain work can be done now for the coming season, and, if neglected until the rush of spring and summer comes, will be left undone altogether. The bad days of the remaining month of the "slack season" ought to be made the most profitable of the year.

Let us for a moment consider a little of the planning that ought to be done concerning strawberries alone. Within the next month, if not already done, there should be determined the relative adaptability of the different pieces of land at one's disposal to the culture of strawberries of various seasons. There should be a full consideration of the market where the fruit is to be sold, its distance, capacity to take care of fruit of a given class, discrimination between early and late, large and small, good and poor, dark colored and light, sorted and unsorted; the method of culture to be pursued; the amount of land to be planted; the preliminary preparation of such land by grading, draining, removing stones, manuring, etc.; the varieties to be planted, the number of plants wanted and where they are to be bought; what fertilizers will be used and where they will be purchased; the probable number of crates and baskets wanted this summer and where they will be secured; what new implements, if any, are to be bought; whether material for winter protection will be grown, and, if so, what it will be and where it will be grown; what land is to be planted to strawberries next year and how it should be handled this year by way of preparation. These are a few of the problems to be solved. The man who has the answers stored away in his head for use when wanted will have a long lead over the one who is trying to think them out in the busy days of April.

The grower who has plants to buy this spring and has not already ordered them, would better make haste. About the middle of January one prominent firm of plant growers wrote us that more than half their stock of standard varieties was then sold, and their catalogue had not yet been issued.

Choosing varieties of strawberries from catalogues is very unsatisfactory. The description of a variety is generally a statement of its leading characteristics, as seen by one man in one place. Another would describe it differently under the same conditions; while, under changed conditions of soil, culture, climate and season, both would modify the descriptions they had already given. A description then can serve as a guide only in a very general way and is valuable mostly in giving others a sufficient idea of a variety's characteristics so that they can tell whether it is worth their while to test it. Testing, after all, is the only way of choosing varieties safely, and nobody should make large plantings on another person's sayso. I give the following for what it is worth. It is from my own experience, supplemented by reports from various sources.

Of the three newer early varieties, Excelsior, Johnson's Early and August Luther, the Excelsior is the earliest and most productive, but so sour it is not fit for home use, and private customers do not want it more than once. Johnson's Early is of good quality for a very early berry, bears longer than Excelsior stands drouth well and is really quite desirable. The August Luther is, if anything, a little earlier than Johnson's Early, about as large, not quite as good looking, of about equal productiveness and quality, long season, and in one place was found to have the valuable peculiarity of blooming later than Michel, but ripening a little earlier. None of them are satisfactory. They are the best we have, but we want a very early kind as large, handsome and good as the Marshall.

So, too, our late berries are unsatisfactory. With us these two extremely late ones, beginning to ripen when nearly all others are gone, the Hunn and Nettie, both pistillates. The Hunn, which is the later of the two, rusts here and in many other places, does not always bear a full crop, and is sometimes badly cleft. In short, it is one of those varieties that is good where it is good and almost a failure everywhere else. With us last year, the Nettie was a very light colored, corrugated and sour but large and productive.

Of a class of late ones a little earlier than these, including Rough Rider, Kansas, Sunshine, Robbie, Joe, Klondike and some others, I think Joe and Klondike are the most valuable. Kansas is a great runner and produces a good lot of fair sized berries. Robbie is light colored and unproductive, but of good quality. Sunshine is large, productive, well colored, but badly coxcombed and sour. Rough Rider is good grower, has good form and color, fair size and quality, but disappointed many in productiveness and size. The Joe is the largest of the late varieties with us, a splendid grower, has a good color, but would perhaps be considered a little too light by some, is of good quality, slightly rough, and, with us, only fairly productive. Klondike has small plants, but big berries in abundance, dark color, not very good quality. Its lateness comes from its very long season. What we are waiting for is a large, productive variety with a perfect blossom, as late as the Hunn. If growers of seedlings would turn their attention to producing good very early and very late kinds instead of adding to the already too large number of midseason varieties, they would become public benefactors.

For the good average grower I doubt if a more valuable midseason variety than Parsons' Beauty has been introduced in a number of years. With us, under ordinary field culture, it is large, regular in form, dark red, glossy, firm and very productive. The plant is large, dark colored, free from rust and a fair runner. The quality is only fair, being somewhat sour. I would not consider it a desirable variety from which to grow fancy berries, as I doubt if it will respond to extra culture as some others will.

Among the second earlies, the Lloyd (Seaford) is perhaps the most valuable, all points considered. The Marshall is the prince of this class, but it is not productive enough and requires too good care too suit the ordinary grower. The Lloyd is large, very productive, extremely dark colored and of good quality. Its plants have an unfortunate way of presenting a bad appearance before fruiting, but the curled leaves do not seem to affect the crop.

In districts subject to severe drouth, the Senator Dulap is likely to become one of the most popular. It is of the Warfield style of growth, but, I think, of better size and quality, equal productiveness, firmness and keeping qualities and a little lighter color. It will grow where any kind of a strawberry plant will grow; and, if left to itself, will run so thick that it cannot bear large fruit. It stood the drouth in the West last Summer better than any of the old varieties except, perhaps, Parker Earle. In some places, however, it has disappointed either in size, productiveness or quality.

The best grower that I know raises, for the most part. Marshall Lloyd, Nick Ohmer and William Belt. His land is heavy and he cannot compete with others in growing early varieties. He has the highest class of customers, who regard quality as well as size and insist on a dark color. Indeed, he thinks he will have to discard the William Belt because it is not dark enough to suit them. He gets the very highest prices, not only because he grows the finest fruit, but because he knows his market and caters to the wants of his customers. To illustrate this, a few days ago he inquired of me what I could recommend as a good variety of medium size, as some of his customers could not afford to pay the prices asked for the immense berries he grows. Under such circumstances most men would spread out and try to grow a farmful of berries. He is going to plant half an acre this spring.

A Stapling Machine

has become a necessity to the progressive fruit grower.

Fifteen Years' Experience

enables us to produce machines which are unequalled for quality and general excellence.

Our machines are in use in every state and territory, and foreign countries.

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There are more Cobden Staplers in use than all others combined, and they do the BEST WORK, LAST LONGEST, and therefore are the CHEAPEST machines made.

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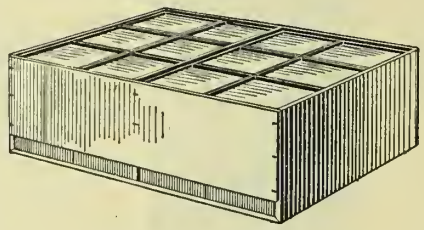

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Berry Boxes, Peach Crates

AND OTHER

Fruit Packages

In flat or made up, direct from manufacturer.

I use Yellow Poplar and guarantee my goods to be first class. Write for prices.

H. A. DU BOIS, Cobden, Illinois

Strawberry Plants

Send in your orders at once; don't think we can fill any large orders after March 1st, at the rate orders are now coming in; never had so many orders booked for plants at this date. Sample and Gandy $2.50 per M.; Johnsons Early, Warfield, Lovett, Crescent and Bederwood, $2.00 per M.; 100 varieties. Wholesale Price List Free. Address

North Star Strawberry Plant and Fruit Farm

COKATO, MINN.

Reference:—Farmers and Merchants StateBank; Postmaster or G. N. Express Agent.

This is the time when strawberry plants ought to be covered if that work has been neglected heretofore. It should have been done last fall, for half the damage has been done now, if the winter has been an open one. The rest will be done between now and the end of March, if the plants are left uncovered.

We all know what it means to take a plant by the crown and pull it up. The roots will be badly broken unless the ground is very light sand. When the ground freezes the water in it expands in all directions. The ground tightens its grip on the crown of the plant and lifts it a little. The next day, possibly, there is a thaw. The earth settles back, but the plant does not. Every freeze and thaw acts the same way. Each rise is so slight that it is not noticed, but by March it has become very perceptible. There is likely to be much such weather in that month. The plants, already lifted and with their hold on the ground weakened, come clear up on the surface, and we say the trouble occurred in March. The first of it occurred in October or November, when the first freeze was followed by a thaw.

If the ground between the plants had been covered in October and the plants themselves in November, the first light freezing would not have reached the ground at all. Meanwhile the water would have gone down from the surface; and, when the ground did freeze, the surface would not have risen so much, and the ground would have remained frozen until there was a real thaw, as one day's sunshine would not have penetrated the cover.

At this time of year, especially, I prefer manure to any other covering. If the ground is frozen it can be applied easily. Many growers are now hauling manure from the cities, and it can be spread over strawberry beds almost as easily as thrown in a pile. I should not hesitate to put on three inches of rotten manure. Last summer our finest berries were picked from beds covered with well rotted manure the previous December. Some of it was in frozen chunks five or six inches thick. The manure had to be removed from over the plants in the spring, as it was too thick for them to grow through. It was not only mulch, but fertilizer of the best kind.

Last summer we tried an experiment that has been very satisfactory. As our strawberries are of many varieties, we plant them in beds, generally five or six rows wide, leaving eight feet between beds. The prevailing winds here are from the west. The rows run north and south. In each space between varieties we planted a row of corn, the stalks of which were left standing to hold the snow. It has worked admirably. The snow which would have been blown to the first fence east of the patch is now lying on the plants. We utilized the strips of land, grew a crop of corn and got some winter protection with very little labor.

I think that this year we shall sow oats between the rows of strawberries at the time of the last cultivating. The oats will take some fertility and considerable moisture, but that will not be all loss by any means. They will choke the little plants on the ends of the runners, which are better dead than alive. The finest plants are frequently grown in a season with a dry fall. There are not so many of them, but they are tough and well ripened, as there was not water enough in the soil to keep them growing late. The oats will produce somewhat similar conditions, and I believe the results will be satisfactory. Of course, the oats will shade the spaces, and, when they winterkill, will fall over the plants to some extent. This is not a new plan at all. Some growers look upon it with disfavor, but even one who would prefer some other plan might be glad to adopt it if he found late in the summer

STRAWBERRY PLANTS

Choices new and staple varieties, by mail or express, guaranteed to arrive in perfect condition. We refer to many thousands of satisfied patrons during our 25 years as strawberry culturists. Our 1902 catalogue contains valuable information and tells about 47 choice varieties. It is authority on the subject. FREE, write for it today. M. CRAWFORD COMPANY, Box 1004, Cuyahoga Falls, Ohio.

IRRIGATED
Strawberry Plants

Since my ad in January number of Fruit-Grower have had so many calls for plants that my assortment is becoming somewhat limited, but still have a good supply of following varieties, which may be had if ordered at same old price:

Excelsior Crescent
Tennessee Brandywine
Prolific Sample
AND OTHERS

In closing out this stock will sell in five M. lots at $2.85 per M. Write for price list today.

O. E. Cox, Columbus, Neb.

Strawberry Plants

Our plant beds never went into winter quarters in a finer condition that last fall, and we never had finer plants. We have the largest stock we ever had to offer. Our first aim has always been to furnish the very best quality plants, true to name. We have also Raspberry and Blackberry plants and Asparagus roots. Our Second-crop Seed Potatoes was never finer than this season. Send for free catalogue.

J. W. Hall, Marion Sta., Md.

Strawberry Plants

As good as we know how to grow.
They are the embodiment of more than thirty years' experience, are true to name, vigorous and well rooted, and the price too, is below most nurserymen. We can furnish you plants of standard varieties at $1.50, $1.75 and $2.00 per M., and the new ones as low as you can obtain them elsewhere.
We also have 25,000 Lucretia Dewberry plants. Get our prices on them.
Are you interested in COW PEAS? If so we can furnish you seed. Write for our catalogue today and save money.
J. W. JONES & SON, Allen, Maryland.

CATALOGUE OF
Small Fruit Plants

Also bargains in Berry Crates and Baskets—20 years' experience. Address

H. H. Aultfather, Minerva, Ohio

Strawberry Plants

I have a large stock of strong, well rooted plants that are true to name. It will pay you to send for my price list before placing your order. Remember I am headquarters for Johnson's Early.

O. A. JOHNSON, Manokin, Md.

TRY THE
Lady Garrison Strawberry

for profit; 13,000 qts. to acre. Before you buy plants elsewhere give me a chance at your order. I can supply any quantity, 1,000 to 200,000. Kansas and Cumberland Black Raspberries. Blackberry plants. Cata. free.
D. W. MOSBY, Dover, Del.

Choice Strawberry Plants

Plants grown on our rich Blue Grass lands of Kentucky can not be excelled anywhere. My stock is extra fine and true to name. A certificate from Entomologist with each order. If not pleased will return your money. 300 Haverland, Tenn. Prolific and Gandy, $1.00; per 1000. $3.00. Boswell Fox, Winchester, Ky.

Strawberry Plants

Can furnish only a limited number of plants this spring, but what I have are fine. No catalogue; only price-list this spring, but have a few 1901 catalogues which I can send to those wanting plants. Send for price-list.

D. McNallie, Sarcoxie, Missouri

LUCRETIA Dewberry Plants

Extra fine plants at $5.50 per thousand, f.o.b. Progress Raspberry plants, $4.50 per thousand, f.o.b. Strawberry plants, $2.50 per thousand, leading varieties.
E. N. PLANK, JR., Decatur, Ark.

OHIO GROWN STRAWBERRY PLANTS
Leading Varieties. Large Stock of Excelsior, Erie Blackberries. Apple trees. Prices low. Send for price list. CARSON & SON, MIDDLEPORT, OHIO.

When you write to Advertisers, always mention Western Fruit-Grower.

that covering material was likely to be scarce.

In this month of February the prudent grower is laying out his plans for the year's work. If he is reading up on strawberry culture, he will find that there is no dearth of instructions on all branches of the subject. There is one thing, however, that he cannot get out of books and papers, and that is judgment. No terson can tell another how many strawberry plants he ought to set out, for nobody but the grower himself knows how much other work he has to do, how much help he can hire, what kind of land he has, and a dozen other conditions that enter into the problem.

It looks easy to grow strawberries, and it is easy: but it is easier still to undertake too much and thus make a partial failure of the whole business. If one is undecided whether to plant on a small scale or a large one, it is generally safer to choose the former.

There never was a better time than the present to get into the way of growing fine fruit. When times are good, people have the money to buy it: and, if co-operation could only be secured among growers, consumers would be educated up to the point where they could scarcely live without it. But times will not always be what they are now. Even the most sanguine people admit that. When hard times come and factories shut down, thousands of the unemployed seek a means of livelihood by tilling the soil. They cannot become farmers, as that takes too much capital. They do not become orchardists, because they have to wait too long for results. Many of them do become strawberry growers, as any plant grower, who has been long in the business, can testify from the letters he has received in the years immediately following a panic. Not having experience many of them grow poor fruit. This goes upon the markets, whose powers of consumption have been reduced, creating worse gluts than usual. The grower of other poor fruit has to stand the brunt of this, and sometimes it forces him into a corner whence he cannot get out. If a grower has been in that class, it behooves him to get out of it before the pressure comes.

Hundreds of growers will start out this spring with the intention to do things right. Some will persist. Others will commence almost at the start to fall a little short of their intentions. The land is not quite as rich as it should be, but it "will do." It ought to be prepared a little better, but it will have to go as it is. They are satisfied that the little plants in the spaces are not as good as the larger ones near the old plants, but they do not want to dig into the rows. They prefer to plant in April, but they are very busy and put it off till May. They intend to keep the rows narrow, but the runners are allowed to grow two or three feet long before they are cut. In August there is a drouth, and, while they believe the cultivator should be run once a week, the ground is clear of weeds and does not appear to be crusted, so the cultivating is neglected. The plants are not covered till February. The intention is to remove the cover before growth commences, but it is allowed to remain a week too long. When it is taken off, there is a white, tender growth ready to be nipped by the first frost. The berries are finally ripe. Not being fancy, they are not considered worth sorting. They are put on the market and bring only ordinary prices. On the whole, strawberry growing has not proven much of a success.

Now let us see where the trouble lay. The chances are that it was in undertaking too much for the available capital. Had there been ready money with which to hire help to do all work right and at the right time, the results would probably have been satisfactory. As there was not, the acreage should have been reduced to fit the capital. Two hundred bushels of berries to the acre, worth three dollars a bushel, is nothing wonderful under good culture. One hundred worth two dollars is above the average under poor culture. If these growers had put all the labor on one acre that they did put on two, used perhaps more fertilizer on one than they did on two, and spent the same amount for crates and baskets, they would have been justified in expecting a return of $600 from one acre instead of $400 from two. On the other acre they could have grown enough corn fodder at small expense to cover their strawberries well.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

More About Black Ben Davis

Friend Holsinger: I noticed your letter in Western Fruit-Grower about Gano. If, as you say, the apple you tested was Black Ben Davis then perhaps it is all right. But how do you know that it was Black Ben Davis? When you get apples from the original tree and compare them like Prof. Stinson has done, should it not be satisfactory? Every apple I have ever seen from the original tree satisfied me that it was Gano, just as much as the Etris and other varieties which claim to be different from Gano, are in reality Gano.

I am here at Columbia for a month teaching a class of 30 boys some facts about fruit growing. Perhaps I will not be at our next meeting, but my interests are there just the same.

L. A. GOODMAN.

L. A. Goodman: In answer will say the apples were labeled "Black Ben Davis." Both you and I agreed that they were Gano. We had not then critically examined them. All whom I met with were of the same opinion (save Mr. Pancoast). It was his opinion that caused me to go into the examination of the two apples. I think you were invited to be present with the committee at the final test. I am sure Mr. Gano was, but had to leave.

Now, I have nothing to say what the apple acted upon may have been or whence it origin. Was it a different apple from ano? I answer yes; decidedly yes.

FRANK HOLSINGER.

Editor Western Fruit-Grower: I've fruited Gano five years and Black Ben Davis three and how the two varieties can be confounded is more than I can understand. I'm glad Major Holsinger found a difference in the test made. I have the two varieties growing under identical conditions in the same orchard and I only wish to write of them as I find them here. I haven't seen them growing anywhere else. I find Black Ben Davis and Gano different in habit of growth, foliage, color, shade of bloom, setting of fruit, size color at maturity and, most of all, in keeping quality. While they are similar apples and both have the general characteristics of the Ben Davis family, the wood growth is stronger and more thrifty in Black Ben Davis; the foliage is larger and has a brighter green; the bloom has more red in its color; the fruit is not so inclined to set in clusters at the end of the twig; Black Ben Davis is more inclined to become spreading in its growth as it gets age; the fruit is fully a third larger and has a more glossy shade of red; the flesh is more solid and juicy and retains its character to the last. while Gano becomes spongy and tasteless much earlier in the season. I have seven or eight different apples of the Ben Davis family; they are all good here, but Black Ben Davis is so far ahead of all the rest that if I did not know the possibility of a yet greater improvement I would call it the "Masterpiece of Nature's Bounty."

FRANK FEMMONS.
Ahwahnee ,Cal.

0

Say! I have 400,000 berry plants for sale, spring, 1902. Strawberries, raspberries. Catalogue middle February.

B. F. SMITH
P. O. Drawer C., Lawrence, Kas.

1,300,000 Strawberry,

Raspberry, Blackberry, Asparagus, Early Cabbage and Tomato plants. 50,000 Lucretia Dewberry. Order our 1902 Catalogue at once, and see our prices, discounts and premium plants we give away to our customers.

Caleb Boggs & Son, Cheswold, Del.

OOM PAUL
NEW SEEDLING STRAWBERRY

Six giant berries from one plant filled a quart, for which $10 was paid at our field meeting, June, 1901. Send for catalogue, free. Introducer,
T. C. KEVITT, Athenia, N. J.

Tennessee Grown
Strawberry Plants

We have for spring shipment a fine stock of plants of the following varieties at prices quoted. All plants are guaranteed to be true to name and free from diseases; they will be packed in light crates with plenty of damp moss which will carry them through in fine shape. All plants ordered before March 1st can be shipped by freight with perfect safety, which is much cheaper than express. We quote Aroma, $2.25 per 1000; Bubach, $2.75 per 1000; Brandywine, $2.50 per 1000; Cumberland. Tri, $2.50 per 1000; Excelsior, $1.75 per 1000; Gandy, $2.50 per 1000; Johnson Early, $1.75 per 1000; Lady Thompson, $2 per 1000; Michels, $1.75 per 1000; Nick Ohmer, $2.50 per 1000; Warfield, $2 per 1000. Owing to the severe drouth good plants are scarce and the supply of plants in the country will not fill the demand, as all plant growers are short on plants. Therefore always order early to insure that you get what you want.

H. LIGHTFOOT,
Box 11. Chattanooga, Tenn.

Fairfield Strawberry

Three to five days earlier than Michel's Early, twice as large and twice as productive. Send for circular.

West Jersey Nursery Company
BRIDGETON, N. J.

STRAWBERRIES and all other small fruits. We are headquarters for the best; also native Plums and all kinds of fruit trees, shade trees, lawn trees flowering shrubs, garden roots, etc. Our New Free Catalogue tells all about them. Send for one today.
COE & CONVERSE, Box 12, Fort Atkinson, Wis

GRAPES
Strictly first-class vines of best varieties for garden or vineyard by mail, express or freight. For $1 I will mail, postpaid, five each, Niagara, Brighton and Worden, best white, red and black varieties. Safe arrival in good condition guaranteed, and to induce early orders will send treatise on "Grape Culture" or 12 Gladiola bulbs, beautiful mixed colors, free. Order now. Will mail Grape Culture at once; vines and bulbs in early spring. Price list free.
J. H. Tryon, Willoughby, Ohio.

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We carry a full line of the main varieties of Field Seed Corn and are in position to quote very low prices on carefully selected
NEW CROP NORTHERN GROWN SEED
If interested write us for lists and special quotations.

POULTRY SUPPLIES of every description—Write for our NEW 1902 CATALOGUE of Field, Garden and Flour Seeds, Onion sets, etc., also for CATALOGUES of SPRAY PUMPS, PLANET JR. and IRON AGE GARDEN TOOLS.

Our stocks are very complete and we carry only carefully selected, reliable and NEW GOODS. Our seeds are TRUE to NAME and will GROW.

Chesmores' Seed Store
212-215 South Fourth St. St. Joseph, Mo.

SLUG SHOT

Kills insects on vegetation, fowls and calves. In use since 1880. Is effective and safe to use.
SOLD BY SEEDSMEN EVERYWHERE.
Send for free booklet on Bugs and Blight to
B. HAMMOND, Fishkill-on-Hudson, N Y.

PEACH TREES

40,000 Pear, Plum, Cherry and Apple Trees, Mersereau Blackberry

Now reduced; get catalogue and prices. $1 per dozen, by mail.

Cayuga Nurseries
Established 1847.
H. S. WILEY, Cayuga, N. Y.

Late Bulletins Received

"Carbon Bisulphide as an Insecticide" is the title of Farmers' Bulletin No. 145, issued by the U. S. Department of Agriculture. The use of carbon bisulphid is increasing among farmers for destroying woolly aphis, grain weevils, etc. Carbon bisulphid is a colorless watery liquid, and is made on a large scale by passing the fumes of sulphur over red-hot charcoal. The resulting vapors are condensed to a liquid form by cooling, and the impurities removed therefrom. The liquid is one-fourth heavier than water.

The insecticidal value of carbon bisulphid is in its fumes. It is extremely volatile, one volume of the liquid giving 375 volumes of vapor upon evaporation. In a general way, we may say that carbon bisulphid is applicable only where its vapor can be more or less confined. Its field of usefulness is among those insects which cannot be reached through poisoning their food and those that are very difficult to reach with contact insecticides by spraying. Such insects are found both indoors and out of doors, and the general methods of treatment in these two environments must necessarily vary considerably. One part carbon bisulphid vapor to 90 parts air will kill insects in a few seconds, and one part vapor to 254 parts air is fatal in an hour and a quarter.

Injections of carbon bisulphid into the soil have been recommended for woolly aphis of the apple and phylloxera of the grape. Ants, white grubs, gophers, etc., can be destroyed in same way. Regarding the use of carbon bisulphid for borers, the bulletin says:

"Considerable has been written in favor of this use of carbon bisulphid. It is apparent that only the large borers which work in the trunks and lower branches of trees will be good subjects for this treatment. There are usually but few of these in each trunk, and the outlets of such burrows as contain active borers are usually marked by the sawdust and castings which the borers throw out therefrom. Only these burrows should be treated. Clean-cut empty holes in the trunk indicate that the insect has become adult and left the tree. It is, therefore, a useless waste to inject the liquid into such holes. In peach, plum, apricot, and cherry trees (all stone fruits), an abundant exudation of sap through the outlet of the burrow causes a ball of gum, mixed with castings, to collect around the hole. This should be scraped off before the treatment is applied.

"Method of treatment — Having cleaned out the mouth of the hole as well as possible, inject a small quantity of carbon bisulphid and close the hole tightly with a little grafting wax. This will quickly kill the borer and will not injure the tree; it also saves the additionaly injury which would necessarily be made in cutting out the borer. The saving of time alone will fully pay for the small amount of carbon bisulphid required. The liquid may be conveniently applied by means of a spring-bottomed oil can."

Currant growing is an important industry in sections of the East, and to all interested in this fruit a late bulletin issued by the Geneva (N. Y.) experiment setation on "An Epidemic of Currant Anthracnose" will be of interest.

In Eastern New York, last season, currant foliage was quite generally affected with a form of leaf blight or anthracnose. The lower leaves were yellow and thickly covered with very small brown spots. The disease works from below upward. The lower leaves become thickly covered with small, dark brown spots, turn yellow and fall. The disease appears in June and continues active throughout the season or until the bushes have been completely defoliated. Currant canes were quite generally defoliated early in the season and the exposure of the ripening fruit to the sun brought about sunscald, resulting in a loss of nearly one-half the crop in some plantations.

The disease attacks the leaves, petioles, fruit, fruit stems and canes. In New York state it is present among currants almost every season, but there is no record of its destructive occurrence since 1889. Although it attacks also gooseberries and black currants it has not injured them in the same locality where red currants have been seriously damaged by it. It is readily distinguished from the ordinary leaf spot by the size of the spots, which are much smaller.

The weather conditions last spring seem to have been particularly favorable to it; but judging from the past history of the disease it is not likely to become a constant pest. Fruit growers need not be alarmed. Probably, it will become epidemic only occasionally.

Although there are scarcely any experimental data at hand, it is likely that anthracnose may be prevented by spraying with Bordeaux mixture; and since currant worms make necessary at least one application of Bordeaux, and leaf spot (a disease known to be preventable by spraying) is always more or less prevalent, and it seems likely that the destructive disease known as cane blight may be checked, it is recommended that currants in the Hudson valley be sprayed regularly every season. Spray thoroughly with Bordeaux mixture, commencing before the leaves appear. Make the second treatment as the leaves are unfolding and thereafter at intervals of ten to fourteen days until the fruit is two-thirds grown. In wet seasons make one or two applications after the fruit is gathered. When worms appear add paris green or green arsenoid to the Bordeaux.

In a late bulletin from the Geneva (N. Y.) experiment station (No. 200) are a number of notes of interest to fruit-growers. The first is an account of the injury of pear trees in a nursery cellar. In a cellar at Rochester 25,000 pear trees were seriously injured by thawing too suddenly. The sand covering the roots of the trees had become frozen; and in order to facilitate the removal of the trees a fire was built in the cellar. A few days later it was found that the upper parts of all the trees had turned black. Although the trees were practically uninjured for planting it was impossible to dispose of them at wholesale and they were almost a total loss to their owner. The damage was caused by the trees thawing too rapidly, not because they had been frozen in storage, for trees which thawed gradually were all right.

Another note of interest is the discovery that the shot-hole fungus so destructive to the foliage of cherries and plums has been discovered attacking the fruit-pedicels of cherries. This discovery is of considerable scientific interest , but it has little or no practical bearing on the control of the disease. The presence of the spots on the pedicels caused the fruit to ripen unevenly. Many of the fruits were dwarfed and some of those most severely attacked withered. However, these injuries cannot, with justice, be attributed wholly to the spots on the pedicels. The premature falling of the leaves, also, had something to do with it.

The third subject treated of interest to our readers is "The Imperfect Fertilization of Peaches." During the past season a fruit-grower of Penn Yan suspected that the "little peach" disease had made its appearance in his orchard. Now, this "little peach" disease is a new and destructive enemy to peach-growing in Michigan and Western New York. No cause and no remedy for it are known. However, upon investigation, it was found that the case at Penn Yan was simply a case of imperfect fertilization. Of course imperfect fertilization is common among peaches, but this case had some unusual features making it worthy of record. Moreover, there are undoubtedly many fruit-growers, like the one at Penn Yan, who have read of the "little peach" disease, but having never seen it are unable to distinguish it with certainty from the effects of imperfect

"1902"

Results in 1901

97 per cent Perfect Fruit

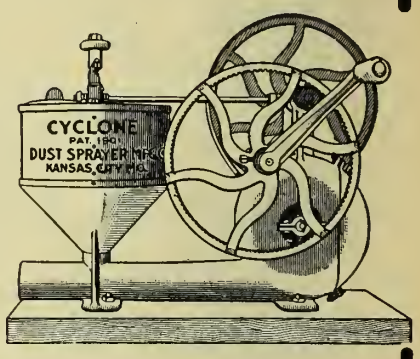
See Illinois and Missouri reports, the only states where process was introduced.

60 Per Cent IN COST OF SPRAYING SAVED BY

DUST SPRAY

Over the Liquid Method...

"I have visited Mr. Johnson's place for the purpose of examining the Cyclone Dust Sprayer. (I had already seen and examined the 1902 at the St. Joseph meeting, where it was on exhibition.) I expected to see a good machine. I saw it operated; IT MORE THAN MET MY EXPECTATION. It is THE MACHINE, and I take pleasure in recommending it to all practical fruit growers.—W. D. Maxwell."



For Catalogue and prices write

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Advance No. 1
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For the manufacture of Fruit Packages

With Points of Superiority over any other machine built Substantially built of the Best Material by the Highest Clas. of Mechanics. Manufactured by

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For Farmers

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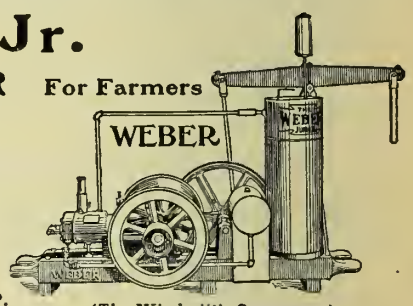

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Please notice Ideal and Red King, the two greatest apples of the age, are at the top of the ladder. We have a complete line of nursery stock of all kinds and some fine specialties in Peach, Plum and Apple. We have adopted a plan of dealing directly with the planter which will save him at least 25 per cent of the regular price. Drop us a card for catalog and full particulars.
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APPLES, CHERRIES AND GRAPES
Only five failures of crops in over fifty years—1600 to 2,000 feet above sea level. Nearest to Eastern markets, above the danger line for frosts; and low rates of freight. Healthiest county in the United States—see Census Statistics. Good homes and hospitable people.
Land $5.00 to $30.00 Per Acre
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PEACH TREES
We have the following varieties of Peach Trees in June buds, they are closely graded and the price includes boxing. Orders will be taken until the stock is all taken up. A certificate of inspection accompanies each shipment.

	6 to 12 in.	1 to 2 ft.	2 to 3 ft.
	$15.00	$20.00	$25.00
Emma	1,000	12.000	14.000
Triumph	1,000	2.000	3.000
		$25.00	$30.00
Mathews Beauty.		1,000	500
Francis		500	

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For Sale---Peach, Apple and Japanese Plum Trees and Grape Vines
Good stock and low prices.
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There are two kinds of Trees; Safe Trees and the other kind. Rogers Trees are Safe Trees.
THE ROGERS NURSERIES,
Tree Breeders. DANSVILLE, N. Y.

fertilization. Hence, it seems desirable to give a detailed account of the Penn Yan case.

The orchard was composed of 150 ten-year-old trees of the variety Globe. Occasional trees of several other varieties were intermingled. The owner stated that enough fruit had set to make a full crop. In fact, he expected to be obliged to thin it; but the great majority of the fruits failed to develop, although most of them remained hanging on the trees until ripening time. He estimated that the yield of marketable fruit was between one-eighth and one-sixth of a full crop, the money loss being about $500. Our observations were made September 25, says the bulletin. At that time most of the marketable fruit had been gathered, but the majority of the small imperfect fruits were still on the trees. On the same tree and even on the same branch one could find fruits of all sizes from one-half inch in length up to normal fruits having a circumference of about eight inches. (See Fig. 1.) The majority of them were smaller than a normal peach pit. For the most part the little fruits were normal in color and free from rot. However, some of the smallest were somewhat shriveled. Nearly all of them below the size of a walnut could be cut, without much difficulty, directly through the pit, which was abnormally small and rather soft. Fruits of this size were usually without any kernel in the pit. Those which were one-half to two-thirds normal size often had pits with kernels which had partially developed and then decayed. Frequently the cavity was filled with gum. The little fruits were often misshapen. Many were double and some triple.

SMALL PEACHES, DUE TO LACK OF FERTILIZATION.

It is not unusual to find unfertilized peach fruits in the spring—little woolly things which fall early in the season in what is called the "June drop." The unusual feature of the present case is the fact that the unfertilized fruits hung on the trees until ripening time and some of them made considerable growth. Had they fallen at the usual time they would not have attracted attention, but it would simply have been said that the fruit did not set well.

Why this particular orchard should behave in this way is not clear. So far as can be learned the orchard has received no unusual treatment which would account for such a condition. That it was partly due to some peculiarity of the variety is shown by the fact that trees of other varieties, viz., Old Mixon, Stevens Rareripe, Hill Chili, Smock, Stump and Elberta, which were intermingled with the Globe trees, all bore a full crop and with the exception of Elberta none of them showed any sign of the trouble. Elberta showed a little of it. Still it cannot be wholly a question of varieties, because last year the same trees bore a full crop of fine fruit; and the owner has never before noticed any of the trouble.

Most of the trees were in a fair condition of general health. For the most part the leaves were dark green and there had been a fairly good growth of new wood. Last year there was a full crop of fruit, but it was thinned so that the trees were not injured by overbearing. The soil is a sandy loam, well drained, and the air drainage is fairly good. The soil has been cultivated every year and no other crop has been grown between the rows except when the trees were small. Last spring the orchard was not plowed until about June 1, and then the soil baked so hard that there was much difficulty in pulverizing it again. No manure was applied in the fall of 1900 and none in the spring of 1901. In the early life of the trees the owner thought they grew too fast and so manure was withheld from them sowewhat.

The intermingling of the other varieties seemed to have no effect upon the Globe. Globe trees standing adjacent to trees of other varieties having a full crop of fruit were quite as much affected as trees standing at a considerable distance from other varieties.

In the "little peach" disease the pit is of normal size and contains a well developed kernel; whereas, in this case, the pit is abnormally small and contains no kernel or at most only an abortive one. Herein lies the most striking difference between "little peach" and the effects of imperfect fertilization.

When a tree is affected with "little peach" all of the fruits on any given branch are affected and are fairly uniform in size; whereas, in the case under consideration, a normal fruit and small fruits of various sizes may be found on the same small branch. There are other important differences between "little peach" disease and the effects of imperfect fertilization, but the two stated are sufficient to enable anyone to distinguish between them. It is important for fruit-growers to note these differences. Trees affected with "little peach" should be promptly removed. They do not recover, and it is possible that they may be a source of infection to healthy trees.

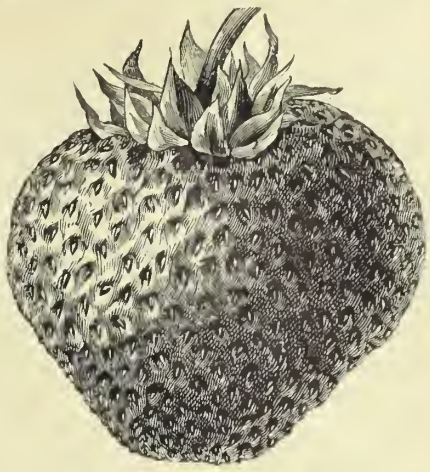
Imperfect fertilization, on the contrary, is certainly not infectious and trees seriously affected one season may bear a full crop the following season. Consequently it would be unwise to destroy trees because of imperfect fertilization.

Fight the Canker Worm Now

Apple trees which have not yet been banded to prevent the female from climbing the trunk and laying her eggs should be so protected at once. A bulletin just issued by the New Hampshire Experiment Station, prepared by Prof. Weed, says:

"Various substances have been used in the past for this banding of the trees, printer's ink being, perhaps, the most popular of these. The best think now available, however, is the substance called Bodlime made by the Bowker Chemical Company of Boston, Mass. This is a thick, pasty material which may be put directly upon the bark of the trees in a wide band which will remain fresh and in position for months. The manufacturers say that "the band should be from two to two and one-half inches wide, and from one half to three-fourths of an inch thick at the lower edge. Bevel off the upper side of the band to the bark to shed rain water, and bring the lower side to a sharp edge. The banding is best done on a moderately cold day, using a common, smooth blade trowel for spreading and shaping the band. Working the mixture over with a trowel softens it." The manufacturers also give the following caution: "Do not apply Bodlime to young, thin barked trees. In this case it is best to spray. Remove all bands as soon as the danger from the canker-worm is over. This is important."

Prof. Weed quotes Albert Demerritt of Durham, who used Bodlime last year. He says it was so effective he will not need to use it this year. He says he was obliged to make daily examination of the bands of Bodlime to take off the moths that were caught each night to prevent their bridging the bands with their dead bodies. Bodlime is especially recommended for applying to elm and other large trees which cannot be sprayed. Address Bowker Chemical Co., Boston, Mass., for particulars as to Bodlime, and mention Western Fruit-Grower.



Is the title of a book which has worked a revolution in strawberry growing.

It treats of the philosophy of plants and answers every question under contention in the Western Fruit-Grower during the past three months and does it so plainly that a child can comprehend it.

The most perfectly developed plants for spring planting to be found in the country.

During the year this establishment has been visited by the most eminent horticulturists in nearly every state in the Union and pronounced the most perfectly equipped in the country.

Send for the book at once.

R. M. Kellogg
Three Rivers, Mich.

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Send us a list of your wants in the nursery line and we will give you prices which will interest you; Apple, Pear and Peach Trees at prices that are right; Small Fruit Plants cheap.

Early Xing Blackberry is a money maker. Best for home use or market. Our catalogue tells about it.

If you want Advice on VARIETIES, ORCHARD PLANTING, LANDSCAPE GARDENING or VEGETABLE or FLOWER GROWING, do not hesitate to write to us. If we can help you to raise better FRUIT and VEGETABLES and more BEAUTIFUL FLOWERS, we will feel well repaid for assisting you.

See our special offers in January Western Fruit-Grower. We are still accepting orders for these most liberal offers. Send in your order before stock is all gone.

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Geo. S. Josselyn
FREDONIA, N.Y. INTRODUCER OF
Campbell's Early.....The Best Grape.
Josselyn.....The Best Gooseberry.
Fay.....The Best Currant.
Awarded gold and silver medals at the Pan-American. Large list of Grape Vines and Small Fruit Plants. Catalogue Free.

Results of Spraying in 1901

We had trees of different ages and various sizes on all kinds of soils and every exposure and had results in proportion to the amount of work and brains put into the business. There were the most and best apples on the least land where the moisture was conserved either by cultivation or mulch formed by decaying grass or growth of some plant cut and left on the ground. Our trees are planted close, some only twenty feet apart, and the mulch formed by the falling leaves helps to fertilize the soil and mulch it also. The trees suffer less in time of drouth where the ground is protected from the scorching rays of the sun and the humus is not burned out of the soil like it would be if the trees were planted wide and large places were left exposed to the sun or had to be cropped to keep the ground covered, thereby removing fertility and moisture which the trees need badly in time of drouth. Twenty feet apart is too close on moist soils for many varieties of apples, but on very thin hill land it is all right, as the trees will not live to a ripe old age like they do up in New York. Trees should be set at such distances that they will not crowd each other in the days of most usefulness, depending on the age the orchard will live and the habit of growth of the trees.

There was a great deal of wet weather in the spring just after the blooming season, and fungous diseases had a good start where the trees were not sprayed, and insects were numerous, too, so the men who did not spray or sprayed only once or twice had bad luck with their orchardists who did the best they could, so they say. Many in spraying and providing fertility and moisture for their trees made more money the past year than common. In mid summer there was a severe drouth and extreme heat and the soil that was deficient in humus or lacked a mulch or shade rewarded the owner sparingly. We had very few trees that showed signs of wilting and our fruit did not drop from drouth, fungous diseases or insects to any extent. There were reasonable rains later in the summer and in September, and frosts did not appear, but we had cool nights and the fruit developed the best I ever knew. It was large, smooth, bright and well colored, and the eating quality was above the average. But the best thing for the buyer is that they will keep till the inferior stock is out of the way.

We have used the Bordeaux mixture eleven years and I know of nothing better yet, to which we added arsenite of soda at the rate of a pound of arsenic to 200 gal. water. It is as good as Paris green and costs only half as much and is twice as strong. To make the arsenite of soda: One pound arsenic, two pounds sal soda and one gallon water should be boiled together for about fifteen or twenty minutes to dissolve the arsenic. We boil five gallons at a time. We fill a barrel with water the night before we are to spray and suspend a sack of blue vitrol in the top of the barrel and it will be dissolved in the morning. We dip out the quantity that will make the required number of pounds for the tank. When the Bordeaux mixture is made the arsenite is put in and the spraying commences. The first application is made just before the trees bloom, the second just after the bloom falls, the third about two weeks later and the fourth about the last of June. We use both the fungicide and insecticide for every application, and the poisons are then ready to kill any insect when it commences to feed on foliage or fruit and the fungicide to destroy the spores of the apple scab when it is ready to develop on the leaf or fruit; also to prevent the growth of other fungi and the bitter rot is effectually kept off of our fruit by such spraying as I have been doing.

The Rome Beauty is the best apple here, but it is very scabby if not well sprayed. We find it pays to make two or three pickings of them when there is a crop, the same as with peaches. By picking when the first fruit ripens the little green ones would be worthless then, but in two weeks they will pass for first-class fruit where well sprayed. We always pack in the orchard as fast as the fruit is picked. It is put up in two grades for cold storage and the wormy and very small specimens were kept out. We sold last fall at $3.50 per barrel and shipped as soon as picked. There was less than half a crop, but it brought more money than any crop of fruit ever raised on the farm. It took nerve to keep on spraying when other crops needed attention and it looked like there would be very little or no fruit, but it paid well and those who quit lost by so doing. I think of getting a dust sprayer to try next time, but I will not abandon the liquid spray till after I give the dust a good trial and probably I will think best of the water as conveyor then, but the dust seems to be so much handier on rough hill land and it is so much trouble to haul the water on such places.

The material and labor for spraying cost a little over $200 and the grain was great, probably more than $3,000 on the crop. Judging from the yields of other orchards there would not have been half as many apples and more than half of them would have been on the ground at picking time and what would have been picked would have been worth only about two thirds as much per barrel.

U. T. COX.

Lawrence Co., Ohio.

Our Roll of Honor

We take pleasure in presenting herewith names of those who have filled out our "Five-for-adollar" blanks. There are over a hundred names, you will note, of persons from all parts of the country who have sent five or more new subscribers up to February 10. None sent less than five, and some sent as many as forty. There were many lists of ten and twelve. The list does not include those who sent from one to five—this list would be too long to publish.

Now, we mention this only to show how our readers are showing their appreciation of the Western Fruit-Grower. We are grateful to all our friends and wish to suggest that others try to send five or more new subscribers before March 10. Where five or more NEW subscribers are sent in at one time, remember, they can be sent at 20 cents each. We are satisfied all subscribers taken at this rate will pay 50 cents a year hereafter.

We have several thousand subscriptions expiring in February and March. Will you not renew today, and in renewing send a list of new names? You can get five new names easily—this list of over 100 persons had no trouble in securing over 700 new subscribers in the aggregate.

Ask your friends and neighbors to subscribe, and enroll your name on our "Roll of honor."

This is our list for February, and we are proud of the showing:

H. D. Frost, Delhi, Okla.
D. C. Taylor, Trenton, Tenn.
J. W. Ince, R. D. 1, Painesville. O.
J. U. Pace, Box 48, Edmond, Kan.
W. E. Shoemaker, Laceyville, Pa.
J. G. Foot, Galt, Mo.
R. McFarland, Deweese, Neb.
J. R. Trump, Melrose, Ill.
A. L. Stockwell, Portis, Kan.
J. E. Cole, Union, Me.
L. W. Bourne, Nogal, N.Mex.
Arch McEwen, Portales, N. Mex.
R. Davidson, Pleasantview, Ky.
W. C. Nash, Springfield, Mo.
John Lamoreaux, Lodi, N. Y.
H. Baughman, Wymore, Neb.
E. D. Bedford, Sharon, Utah.
J. W. Enlow, Moundsville, W. Va.
John Dalziel, Canon City, Colo.
H. W. Otis, Peshastin, Wash.
F. W. Kimberlin, Cosby, Mo.
T. Jones, Capron, Okla.
John C. Mitchell, Franklin, Tex.
John Perrine, Camp Hagerman, O.
James R. Paden, 404 Walnut st., Kansas City, Mo.
A. I. Kuy Kendall, Comanche, Tex.
J. E. Atkinson, Pawnee City, Neb.
Wiley L. Brasel, Kewanee, Ill.
Wm. Hinton, Hinton, W. Va.
J. W. Fitzpatrick, Humansville, Mo.
F. H. Worswick, Oskaloosa, Kas.
J. S. Millsap, Grannis, Ark.
A. Littlejohn, Belleville, Ark.
S. S. Felker, Martinsburg, W. Va.
F. C. Reese, Corning, Ia.
O. B. Cunningham, Carleton, Mo.
A. Fine, Maxson, Kan.
E. C. Tabor, Littlesburg, W. Va.
Chas. W. Sullivan, Mayview, Mo.
Henry York, Rossville, Kan.
R. H. Jones,, Billings, Mo.
B. N. Smith, Grantsville, W. Va.
Geo. E. Ashford, Davenport, Iowa.
W. C. Montgomery, Owensville, Ind.
D. C. Willett, Haran, Va.
B. J. Bennett, Livia, Ky.
R. J. Williams, Henderson, Tenn.
J. T. Harley, Clarksville, Ark.
Geo. Hayden, 830 Grove st., Jacksonville, Ill.
F. G. Harley, Keene, Ia.
F. B. Logan, Pinon, Colo.
Mode Anson, Aullville, Mo.
W. W. Hendricks, Bolivar, Mo.
P. Carter, Charleston, Ark.
J. R. Baker, Amarillo, Tex.
Mrs. Belle Moses, Hurrican, W. Va.
G. W. Devaul, Trenton, Mo.
Arthur Cunningham, Springfield, O.
J. G. Reist, Mount Joy, Pa.
J. L. Broadders, Henry, Ill.
August Fietsam, Fayetteville, Ill.
Jno. R. McCoun, Gentry, Ark.
J. C. Tate, Milan, Mo.
B. F. Throne, Moselle, Mo.
H. H. McConnell, St. Louisville, O.
L. D. Wright, Knoxville, Ia.
J. R. Schaemetzler, New Douglas, Ill.
Fred Crosby, Portales, N. Mex.
Joseph Ledl, Pierce City, Mo.
J. H. Drury, North Star, Neb.
Wm. Dyke, Effingham, Ill.
John Shaw, Stockton, Kan.
Thos. B. Price, Albion, Idaho.
Jos. E. Cole, Union, Me.
R. J. Williams, Henderson, Tenn.
Dan'l Fry, Watseka, Ill.
W. T. Hawkins, Hull, Ill.
Wm. H. Dowell, P. M., Granger, Mo.
M. B. Van Ness, Seymour, Mo.
P. Carter, Charleston, Ark.
Wyatt Cannady, Marionville, Mo.
John E. Corbett, Elkader, Ia.
P. A. Mourrette, Centerville Station, Ill.
J. R. Green, Parn, Ark.
J. H. Crowley, Rocky Ford, Colo.
A. G. Horn, Dolgeville, N. Y.
J. P. Baker, South West City, Mo.
A. F. Pitt, Jerseyville, Ill.
H. C. Irish, St. Louis, Mo.
R. Flack, Mendon, Ill.
Wm. H. Dowell, Granger, Mo.
E. W. Woodward, Neosho, Mo.
W. S. Baskett, McFall, Mo.
W. D. Amis, Hagerman, N. Mex
T. S. Johnson, Port Clinton, Ohio.
H. D. Tufts, Aurora, Ind.
Hamilton Perry, Brewers, Ky.
B. F. Watts, Myrtle, Okla.
J. T. McDonald, Batesville, Ark.
F. C. Shields, Omaha, Neb.
J. Burrey, Vicksburg, Pa.
Jas. Brooks, Coal City, Ill.
J. H. Hart, Eagleville, Mo.
E. P. Ryan, Neodesha, Kan.
J. L. Hard, Ganntown, Ill.
W. H. Robinson, Dunlap,

Our March Number

We wish to thank our friends for their approval of our January number. We have enough complimentary letters from subscribers and advertisers to fill this entire paper, we believe, but cannot publish them, of course.

The management will try to show its appreciation by improving the paper in every way.

Now, for the next issue: The article on "Fighting Second Brood of Codling Moth," by Prof. Lloyd of Illinois, which was announced for this issue, was kept over until next month, on account of lack of room. It is a good one, and will be in plenty of time next month.

Wm. S. Crawford, son of the well-known M. Crawford, will have some more timely strawberry talk next month. In this work he will have the assistance of his father.

Those who have read the articles on mixed planting of apple trees will be glad to have Mr. Benjamin Buchman's report of time of blooming of different sorts. His notes, taken from his orchard of over 1,400 varieties, show which varieties bloom at same time—and this is important in securing cross-fertilization, you know.

The continuation of the article on "Luther Burbank and His Work," describing some of his methods, will be of interest to all admirers of this gifted man.

The regular departments will be up to their usual standard.

The March issue will be a good one—perhaps 40 pages again—and you can't afford to miss it. If your time is out, renew; if you are not now a subscriber send your name and money today.

Believes in Dust Process

I resire to present a few thoughts through your most valuable paper on the subject of spraying. It is a question which attracts the attention of all practical fruit growers as no other pertaining to horticulture. All admit that something has to be done. But there are but few growers who are trying to destroy the enemies of our fruit. Some are sparing neither time nor money to seek out and apply the best means in order to succeed. I have used both the liquid and the duts sprays. There are so many in favor of the dust over the liquid that I don't expect to ever use the liquid again. All horticulturists know that the bordeaux mixture is the only thing recommended to prevent fungus diseases in the orchard. In the dust process the mixture can be increased to any strength desired, with perfect safety. Not only that, but in addition to the formula for liquid, you can, by using the lime as a conveyor, add concentrated llye and powdered sulphur. Sulphur is one of the best fungicides known, but it can't be dissolved in a liquid. In addition to the mixture as given above your arsenic poison can be used in much greater quantity, so that no living thing can prey upon your foliage without certain death. You may prepare your compound stronger than is necessary but you need have no fear of burning your foliage. There is great danger in the liquid as many found out by sad experience. I sak you, in all candor, is it not reasonable that for every good thing that can be said about the liquid process, much more can be said about the dust? I sprayed six times last year and the average cost per tree for compound was about 1½ cents to the tree.

In Prof. Stinson's paper on bitter-rot before the Missouri meeting, he said to spray, but took pains to emphasize the liquid process and barely made mention of the dust and when asked if he had given the dust a thorough trial he said no. Our experimental stations are established by the state at public expense for the benefit of agriculturist and horticulturist and we have the right to receive from their hands the best experience possible. Prof. Stedman said: "Spraying was a nuisance," and yet he recommended it. Is it not a fact that about all the information and formulas used by our experimental stations had their origin and start from the practical man on the farm, and the experience of the wide-awake horticulturist? My experience teaches me that the best information to be gained is not from the men in charge of experimental stations, but, from your brother farmer and horticulturist that is engaged in like pursuits. I would advise all to spray and to do it thoroughly and at the right time, and if your expectations are not fully met, double your efforts the next time. Use the dust process.

W. D. Maxwell.

St. Joseph, Mo.

HOW ABOUT PRUNING SHEARS?

In an advertisement elsewhere in this issue, the Western Fruit-Grower offers some splendid pruning shears free as premiums for new subscribers, or they will be sent for cash. Read the offer, and get the shears at once, for you need them. Read what a nursery firm says:

"Your pruners just received, and they are all you claim for them. For ordinary use we like the small size the better.—Hart Pioneer Nurseries, Fort Scott, Kan.

We are pleased to announce to our readers that Mr. Wm. S. Crawford has promised to write notes on strawberry culture for the Western Fruit-Grower. This is good news to those who know who Mr. Crawford is. He is the son of M. Crawford, perhaps the best-known strawberry man in the United States, and in his writings Mr. Crawford will have the benefit of the advice of his father. This arrangement, in connection with reports from our readers concerning small fruits, will make this features of the Western Fruit-Grower of much interest to those interested in these fruits.—Editor.

The opening up of free mail delivery routes all over the country has resulted in a tremendous increase of the business of catalogue houses. Such firms as Marvin Smith Co., of Chicago, who always treat their customers in a very careful manner, are reaping a just reward of their straightforward business policy.

Here is Luther Burbank's formula for making grafting wax: Take one pound of tallow or raw linseed oil, two pounds of beeswax and four pounds of resin. Slowly melt all together, stir well, and when partially cooled pour into pans which have been moistened or oiled to keep the wax from clinging too tightly to them. When thoroughly cold break into convenient pieces. For use it should be melted and applied carefully over all exposed cuts and open cracks around the grafts. A small paint brush is the most convenient for this purpose. It can be applied safely much warmer than can be borne by the hand, but care should be used not to have it very closely approaching the boiling point of water.

The Kansas Farmer recently issued a splendid 32-page edition giving full report of the proceedings of the Kansas State Agricultural Society.

ILLINOIS PEACH. This new peach was originated by Louis H. Frese, properietor of Forest Oak Nurseries, Coatsburg, Ill., and is one of the largest peaches grown, flesh yellow, with a dark red cheek, rich and very delicious in quality, is a free stone and ripens late in October, specimens placed on the scales proved to weigh one-half pound, the tree is a fine grower, and also a good bearer, and has a gard green foliage. Many who chanced to visit my nursery while the Illinois was fruiting, pronounced it one of the largest peaches they had ever seen fruited, one party to whom samples were sent declaring it to be one of the most excellent in flavor and quality, and said by all means to propagate the peach. The Illinois will be for sale the coming summer to be delivered the fall of 1902.

L. H. FRESE.

Coatsburg, Ill.

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About that Asparagus Bed

In reading ahe January number of The Western Fruit-Grower I found nothing that surprised me more than J. H. Hale's remarks about asparagus. Of course, he is right. I wish that each reader of your most excellent paper had a bed of 1,000 roots; for it would not only furnish a supply of this delicious vegetable, but would be quite a source of income. Some years ago I planted 100 roots two feet apart in the row. The third year we had more than two families could use, and not enough to sell. I grubbed out one-half and the next year we still had too much. I then grubbed out one-half of the remainder. The 25 roots left furnished a great abundance for any ordinary family. Few people know what a well-grown asparagus root can do. Some of those I took out had crowns over a foot in diameter with hundreds of buds. A dozen such roots would furnish more than most families could afford to buy. I have seen 14 good shoots at one time on a single root.

Since people learned that asparagus can be grown just like any other crop, without any extraordinary preparation, immense areas have been planted, but the demand keeps up with the supply. If it is lower in price I have not heard of it. When we consider the amount of money that an acre of asparagus will bring annually for a lifetime, that it never has to be replanted, that it never winter-killed, and that it can be shipped 1,000 miles if necessary, the wonder is that so few people plant it for profit. Inasmuch as it grows in every part of this country and on any kind of soil where other crops flourish, we conclude that all it wants is to be rightly planted in good soil, and have the ground all to itself. Although its wants are so few I think that no other vegetable commonly grown is so often abused. The great mistake is in not giving it room enough.

When we consider that the same root will grow for 30 years, that its root system is enlarging—spreading out—all that time, why do we give it only two or three square feet? It should have at least two square yards and perhaps four would be better.

Now if anyone wishes to follow Mr. Hale's advice and plant 1,000 asparagus roots, here would be my method, and it is over 40 years since I planted the first bed. We will assume that the soil is rich and well drained, just as it should be for any other crop, that it had a hoed crop on last year and that it is now clean. After being plowed and harrowed it should be well furrowed out three feet apart, across the bed, and so deep that the roots can be planted in a natural position, with the crowns six inches below the level of the ground. One-year-old plants should be obtained. Almost any nurseryman can furnish them at $2.50 per 1,000. Stretch a line one foot from where the first row is to be, and set a plant in each furrow, one foot from the line. Place the plant in a natural position, with the crown slightly higher than the roots. Cover only two or three inches deep and leave the balance to be gradually filled in when cultivating during the summer. Set the line over six feet for the next row. If the ground is not rich enough a small handful of any complete fertilizer can be scattered around each plant after it commences to grow. Plant as early in the spring as the condition of the ground will permit. Give clean culture. A row of potatoes can be planted between every two rows of asparagus the first year. M. CRAWFORD.

Cuyahoga Falls, O.

(Our readers, we are sure, are glad to hear from one so well qualified to give advice as is M. Crawford, the veteran fruit-grower, who is so well known from his connection with the strawberry business. What Mr. Crawford says is true—and so is Mr. Hale's position. A small asparagus bed, cared for as Mr. Crawford directs, will yield lots of this splendid vegetable—but the danger is that few people will plant and care for their beds as well as Mr. Crawford. To such persons, the advice to make a big bed is doubtless best. There is no reason why every family should not get all the asparagus from a small bed made as directed by Mr. Crawford, but the fact remains that he is a better cultivator than most persons, who will need a larger bed—and then, too, perhaps Mr. Crawford doesn't eat as much asparagus as Mr. Hale, Major Holsinger and others.)

Columbian Pecan

This pecan is the largest in cultivation. We have had samples that would weigh one-half ounce each; thirty-two nuts making a pound. It originated, or rather was found on the plantation of Sebastian Rome of Central P. O., St. James Parish, La., where it is still standing, and we have been informed that it is over one hundred years old. It is now owned and controlled by Mr. E. Bourgeois of Central P. O., La. The shell is rather thin, but not thin enough to call "paper shell." The kernel is plump, filled out the shell completely to both ends, and it has very little milky substance. The name Columbian was given it at the Columbian Exposition. It is also grown under the names of "Rome" and "Pride of the Coast." We think that it should be called Rome in honor of its introducer, but to do so would rob it of its honors gained at the exposition. The nuts were first sold by Richard Frotscher of New Orleans, La., who claimed they would reproduce from seed, and for many years its propagation was attempted in this way but without success, as it rarely reproduces. A notable instance of this failure to reproduce from seed was that of Col. W. B. Stuart of Ocean Springs, Miss. He planted the seed and grew quite an orchard of trees in this way. After waiting patiently many years for them to come into bearing he was disappointed to find that they were very little if any better than common native nuts. Then Col. Stuart died and his widow had the seedling trees budded in the tops, going back to the original trees in Louisiana to obtain the buds. The buds came into bearing in four years and some of them in two years. In our opinion the "Columbia" is the best all-round pecan that has been introduced. "There are others," but this one is good enough for anybody.

AMERICAN PLANT & SEED CO.
Nashville, Tenn.

He Liked Ben Davis

At the late meeting of the Ohio Horticultural Society U. T. Cox of Bradrick played a joke on Dr. Chamberlain of the Ohio Farmer, who had denounced Ben Davis apples as being of no value to eat. From the Ohio Farmer we take this account of the joke, which shows that many persons condemn Ben Davis apples because it is fashionable to do so: "After supper, in the crowded hotel lobby, Mr. Cox came to Dr. Chamberlain with a quarter of a pared apple and asked his opinion of 'this seedling.' Dr. C. chewed it critically a second or two and said: 'Well, that's a pretty good apple; what is it?' 'A Ben Davis!' was the quick reply, and a shout of laughter went up from the crowd of those who were evidently 'onto' the put up job."

We have understood from a gentleman who was there that the story as printed is practically correct, except that Mr. Cox did not claim it was a "new seedling." This is the same trick which Major Holsinger played on some fellows a few years ago, after they had denounced Ben Davis. They didn't know it when he gave them a piece of a pared apple, and pronounced it of good quality. And so it goes.

To Prevent Potato Scab

Scabby potatoes won't pass in a critical market. In fact the hired man hardly wants to eat them at home, and the hired girl objects to peeling them.

It is a good thing not the have scabby potatoes.

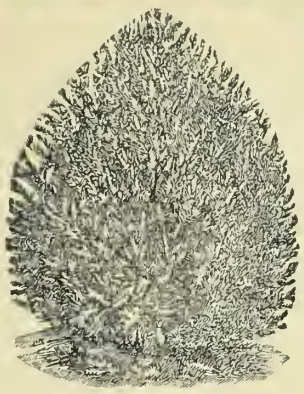
Potato scab may be prevented by very simple means, according to Bulletin 85 of the Vermont experiment station. Prof. Jones says that potatoes should not be planted in soils where scab has been prevalent in previous years. Changing the potato patch to another field is a good preventive measure in such cases.

Scab is often brought in on the seed potatoes, however, and one of the most important means of prevention lies in the disinfection of the seed. This is accomplished by soaking in corrisive sublimate or formalin.

To treat potatoes with corrosive sublimate make up a solution of 1 ounce of the chemical in 7 gallons of water, and soak the seed potatoes 1½ hours in this. This solution is more poisonous than town agency whisky and must be handled with care. It is best to put the potatoes in a loose gunny sack and let them down into the solution by this means.

To treat potatoes with formalin (or formaldehyde, as it is sometimes called,) put a half pint of the chemical (which is a liquid) into 15 gallons of water. Soak the potato seed two hours in this.

Take the potatoes out of either of these solutions, dry them, and plant as usual. The solutions kill the germs of the scab disease and practically prevent its occurrence unless fresh germs happen to be present in the soil from scabby potatoes formerly grown on the same ground.



200 AMERICAN ARBOR VITAE, 1 to 1½ ft., $2.50, prepaid. ¾ to 1 ft., $2.00, prepaid. **$2.00**

At above prices we will ship either of the above 200 lots prepaid to any Express office in the U. S. Order as many lots as you want, but not less than one lot of 200. Each customer will be sent FREE a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreens s are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. A customer who had heretofore failed in tree planting says the pamphlet is worth "ten times its weight in gold." The Am. Arbor Vitae is undeniably the best all-around Evergreen for hedges, windbreaks, and screens. It lives on when others die. May be sheared to suit, tall or low, broad or narrow. ORDER RIGHT NOW, while the supply is large. Prepaid to any station. For $10 1,000 1 to 1½ ft. or 1,200 ¾ to 1 ft. prepaid to any address. Ask for our catalogue of hardy Evergreens etc.

EVERGREEN NURSERY COMPANY, Sturgeon Bay, Wisconsin

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QUICK RESULTS.

J. C. Hale, Winchester, Tenn., proprietor of the Tennessee Wholesale Nurseries, advertised his surplus list of peach trees in our January number. The first copies of this issue were mailed on the 21st, the issue having been delayed over a week on account of the extra size. On the 24th Mr. Hale wrote:

"I have already sold 2,000 trees as a result of this ad."

How is that ofr quick results? It pays to advertise in the Western Fruit-Grower.

WORTH HAVING.

Did you ever see a Colorado Blue Spruce? Do you appreciate the value of buying nursery stock that has been grown in what is commonly called the Blizzard Belt? These questions are suggested to us by seeing the very tasty and compact catalogue which has been sent us by the Gardner Nursery Co. of Osage, Ia., who are advertising with us. On the back cover of the catalogue is a colored photographic view of an average tree of the Colorado Blue Spruce variety. The catalogue also is illustrated profusely with other photographic views, showing the ornamental grounds of the nursery company, their packing rooms, also out of door scenes in the fields and nurseries. There is also one view of what they call a Klondyke scene, the purpose of which is to emphasize the fact that stock grown in the climatic conditions prevailing in that vicinity is hardy and healthy to a degree not possible in a less rigorous climate. The nursery company have also sent us a booklet entitled "The Illustrated Story of a Tree," which is written in a most interesting way. The Gardner Nursery Co. is well and favorably known by hundreds of our readers. Any one who is intending to buy nursery stock this spring will do well to write the Garner Nursery Co. at Osage, Ia., for their catalogue and booklet. In doing so kindly mention this paper.

SPECIAL COLOR PLATE EDITIONS.

The Reliable Poultry Journal, Quincy, Ill., has issued for November, December and January three special color plate editions, containing reproductions of recent oil paintings by the world's greatest poultry artist, Franklane L. Sewell. The November number contains a reproduction of a pair of New York prize winning White Leghorns; the December number a pair of Chicago prize winning White Plymouth Rocks, and the January number a pair of Madison Square Garden prize winning Partridge or Golden Penciled Wyandottes.

Readers of this paper are invited to send for a sample copy of the R. P. J., containing one of these color plate reproductions—your choice. Send soon before the surplus copies are exhausted. Fifty thousand copies of each edition were printed, but the demand for them has been extraordinary and they will not last long. This sample copy is free. Address Reliable Poultry Journal Publishing Company, Quincy, Ill.

WILL THE PHILIPPINES PAY?

Senator Bacon, of Georgia, who has just returned from a tour of study in the Philippines, has written for the Saturday Evening Post, of Philadelphia, a valuable paper on the business aspect of our insular affairs. He comes to the conclusion that our account with the Philippines must, for an indefinite time, be on the wrong side of the ledger. This article will appear in the issue of February 22. Other features of this number will be: "Frictional Electricity," a clever humorous story by Max Adeler; "How Trusts Promote Men," by Paul Latzke; "When O'Connor Draws His Pay," by Holman F. Day; "The Captain of the Gray Horse Troop," by Hamlin Garland; "How Albert Edward Saw America," by Rene Bache; "Letters From a Self-Made Merchant to His Son"; "Sophomores Abroad," by Charles Macomb Flandrau, and the usual miscellany and departments.

University Apple

The best and hardiest tree for the Northwest. Tree perfectly hardy, does not blight, keeps all winter. Fruit large and best in quality.

Compas Cherry

The largest and best cherry for the Northwest. Absolutely hardy, bears fruit next year after planting. Send for free Catalogue.

Minnetonka Nursery Co., Excelsior, Minn.

"A friend in need
Is a friend indeed."

And you need a "Friend" Spray Pump, for you cannot properly spray your trees with that old "squirt gun" on a barrel. Fruit growers everywhere pronounce the "Friend" superior to all other spray pumps.

FRIEND MFG. CO., GASPORT, N. Y.

The proprietor of Forest Oak Nurseries, of Coatsburg, Ill., wishes to call especial attention to the fine line of

APPLE TREES

which are thrifty and free from disease. Any one wishing to plant out an orchard will do well to address me for particulars. I am prepared to give low prices.

L. H. FRESE, Coatsburg, Ill.

FOR SALE

Hardy Varieties of All Kinds of

TREES AND PLANTS

Also best Insect Traps and Powders.

J. R. RICE, Council Bluffs, Ia

TREES RELIABLE, HEALTHY, FRESH DUG. We grow them by the millions. Catalog free to everybody. SHEERIN'S WHOLESALE NURSERIES, DANSVILLE, N. Y.

Free INFORMATION ABOUT **Fruits**

By Prof. Van Deman, fruit editor Vick's Magazine, Rochester, N.Y. Sample & blank FREE

A FRUIT FARM, 75 acres, located in northwestern Arkansas, 36 acre apple orchard; plenty other fruits; house; stable; never-failing well; good neighborhood; 8 months school. Load apples on cars one mile distant. Orchard young; net $700 last year. Price, $2,000. Address Box 19, Jordan, Ind.

A Colorado Fruit Farm For Sale—20 acres, ten blocks from business center of Fort Collins, in the great fruit state of Colorado. Land almost level; irrigated; rich; good markets; beautiful scenery and climate; good roads and water; state college; 3,820 trees of choicest varieties in orchards; four years planted; will have a big cherry and plum crop this summer and some apples, besides tons of small fruit. A good 6-room house, also barn, etc. Place in best of condition. Business interests in Illinois require my leaving here at once. Will sell at a bargain. For location and promise this is choice. Albert S. Spaulding, Fort Collins, Colo.

SWEET POTATOES—Sent out to be sprouted on shares. No experience required. Directions for sprouting free with order. Also Sweet Potatoes for sale. T. J. SKINNER, COLUMBUS, KANSAS

A Banner Offer

Three Magazines for $2.00

We will send the

Western Fruit-Grower, 3 years...$1.50
Leslie's Monthly, 14 mos..... 1.40
Vick's Magazine, 1 yr..... .50
Handsome calendar, 1902..... .50

Total $3.90

All for $2.00-Almost $2 for $1

WESTERN FRUIT-GROWER

St. Joseph, Mo.

Good Trees — Low Prices

Fine stock of APPLE, PEAR, PLUM, PEACH, GRAPE, PECAN and other Nursery Stock. Write for list of prices. We are in a position to please you. Salesmen wanted everywhere.

SMITH BROS., CONCORD, GA.

Maj Holsinger's Department

THE encomiums coming to us on all sides are very pleasant. "The Western Fruit-Grower does herself proud" is heralded at us from all sides. "The January number—isn't she a daisy!" says another. So many encomiums from all sides, make us feel that we are associated with an institution that is worthy and is giving satisfaction, makes us feel a bit "stuck up." May the shadows of the paper never grow less, but achieve still greater success and be a blessing to all. This, I know, is the wish of the management. "So mote it be."

Peach Yellows.—The Rural New Yorker of Jan. 25 has some very valuable information on the subject of peach yellows of which I had something to say in our last issue, much of which has been in line with my article. Prof. Taylor of the Department certainly thinks there are sections in the South and the Pacific Coast immune from this dread disease. It is strange that he should not know that the section is much more extended, that Missouri and Kansas are alike exempt. He says "From observation, no possible care and fertilizing will prevent the peach from infection with peach yellows, or restore to health trees that once show the characteristic symptoms of the disease. It therefore behooves the planter to secure stock that is sound and from uninfested locality."

J. H. Hale (the largest peach grower in the world), says there are some sections in the far South and Pacific Coast where the yellows do not exist.

"There is much unintentional humbug in a good many nurserymen's talk about 'Tennessee natural pits' being the best to propagate on," said Mr. Hale. Owing to a failure of peaches in 1890, many nurserymen got their pits for budding from California from which the very choicest seedlings were grown. After 10 or 12 years' experience I am convinced that for my nursery and orchard work they are more valuable than the so-called 'Tennessee naturals.'

Another reason favorable to the using of only the best pits from improved varieties is that in the event of losing the bud you will still have a good variety, one that will give you satisfaction. I found considerable feeling existing by certain nurserymen at our papers for recommending the planting of these improved seedlings, as "it was hurting the trade." It seems to me this is too narrow a view. The progressive horticulturist should ever be ready to advance that which is for the common good.

Contracted.—Some time since I met Mr. —— an old-time member of the Missouri Valley Horticultural Society. I asked him why he had dropped out of line.

"I'll tell you," he said. "I just don't want to belong to a lot of cranks who are willing to cut their own throats. Here are you fellows meeting and talking over your successes and giving them to the public, thereby encouraging others to go into a business already crowded to death; you thereby ruin your own business. Look at the other felows. If they have anything they secure it by 'letters patent' or 'copyright,' while we are expected to give it all to the public free. I'm tired of all such work."

I would call him a No. 1 pessimist. I have been watching him ever since. He surely has not been able to set the world on fire. There are many like him. The fellow who buttonholes the fruit-grower and fires questions at him by the score, but who don't think it worth while to invest 50 cents in the best paper published, i. e. the Western Fruit-Grower.

Deard Friend Holsinger: I have noticed at times you do not speak well of Garber pear and that it has blighted badly with you. Now, the late lamented Judge Miller recommended it above every other variety, even ahead of Kieffer, and in my neighbor's orchard are Garber trees which have beat any I ever saw; loaded full every year for many years and not a sign of blight, while Kieffers, right beside them, are not doing nearly so well. The trees do not bear so full, fruit is not so large, or so perfect and our Kieffer right beside Garber, ruined with blight and not a sign of blight on the Garbers. I have 300 Kieffer and over 50 Garbers. Kieffer does well, but Garber is such a fine grower; beats anything on my place, and looks so healthy and beautiful with its dark colored bark and fine foliage that I have placed my order for 500 Garbers for spring planting. Please give us your experience with Garber compared with Kieffer. Do us a very kind favor by giving us three or four columns of pear information. I very much admire your writings.—J. E. Johnson, Williamsfield, Ill.

I have nothing to retract in what I have said of the Garber pear. Your experience seems to differ from mine. Conditions are different. Your soil may be especially adapted to the Garber. Mine is rot. At our meeting of the Missouri Valley Horticultural Society yesterday I asked the consensus of opinions of the members present, as to "the relative merits of Kieffer and Garber, as to blight and healthfulness."

President Homer Reed was first to respond: "I planted 10 Garbers and 40 Keiffers. Garbers all dead and one-half of Kieffers."

Mr. Espenlaub: "My Garbers blight badly."

C. V. Holsinger: "Our Garber shows blight."

And thus it ran. Now, we have several thousand Kieffers and I don't know that we ever lost a tree from blight. True, we have some twig blight on our Kieffers, but so little as to give us little concern. We have Kieffers 17 years from planting, that have borne every year since being old enough, and the only blight discoverable is of the twigs. Garbers four years planted show considerable blight. If, however, they are immune from blight, it is the pear for you to plant. I certainly would not plant it on my grounds, save sparingly. Kieffers seven years planted bore three bushels last season. Garber is slower to come into bearing here.

The How and What To Do.—What can we do now in the field of horticulture? Much, very much. On days when not too cold you can find much to do in a preparatory way of getting ready for spring.

Your strawberries should be nicely smuggled in a bed of nice straw. If not, see to it at once. There will be nothing more to do to them until the opening of spring, then you will see to it that the plants are not smothered. Open only sufficiently for them to come through.

Raspberries should be turned and relieved of old canes, all of which should be burned. There is no better time than winter for this work. Blackberries, too, can be treated in same way.

Grapes offer a splendid opportunity for their betterment. How? See that the posts and vines are in good condition. Then prune, removing all superfluous matter. You can have the vineyard in such fix that you can go to cultivating the first thing or without loseing any time in spring. During the early part of winter the conditions were especially adapted to all such work.

The asparagus bed should be cleaned up and cultivated. I do like to cultivate the asparagus bed during the winter. After applying the manure I usually use the cultivator in pulverizing and working the manure into the soil, leaving the surface clean and pliable. I usually use the spade for cutting the stocks about two inches below the surface of the ground. Could you see my bed you could not guess what it contains. My reason for this chiefly is the comfort in cutting. Who that has raised this splendid vegetable have not been severely pricked by the short stubs of old plants? I avoid this by the use of a sharp spade. It is done almost as quickly as by cutting with a scythe and is so much more satisfactory.

Clean off your garden. Burn all the trash and plough if you have not done so. But you can't; the ground is frozen. Is it? About the 10th to 12th this January I ploughed the garden. I found no frost out except where the ground had been shaded. The ground was in splendid fix for the ploughing.

Ah! there is a lot of things we can do it we only set about it. See that machinery is in proper condition, your harness should be looked over, mended and greased. Your plough scoured so that when you do commence there may be no lost time in running to town to have these things attended to.

Each farmer should invest a few dollars in some tools, whereby he can save many steps and much vexation in running to town every time there is a break. A dozen clevises, a few dozen bolts of different sizes, a few extra single-trees—all come in good play. An anvil and vise are indispensable on every well regulated farm. And a grindstone? Well, I guess yes. Not a little 8 or 10 inch concern, but say 2 or 2½ feet across the disk. It won't cost but a dollar or two. Have a foot power, so that you can run it yourself. When a boy, every time my father wanted the axe sharpened or knife ground, I had to do the turning, not infrequently at cost of blistering hands. How I did detest the grind stone. I have too much respect for a boy to make him turn the stone. No wonder the boy leaves the farm and "hikes out."

MEETING OF M. V. SOCIETY.

The usual monthly meeting of the Missouri Valley Horticultural Society was held Jan. 17th in the club rooms of the Coates House. The attendance was quite large, nearly all the leading horticulturists of the society being present and accounted for. President Reed was in the chair. Minutes were read by the secretary, Mr. Chandler. The first order of business was that of considering the work of the committee on program for the year 1902, as follows:

FEBRUARY 15—Meeting at Club Rooms of Coates House, Kansas City, Mo., at 1:00 o'clock.

"What Fruits Shall We Plant the Coming Spring?"—M. Butterfield.

"The San Jose and Other Scales."—Prof. J. M. Stedman.

Written report on stone fruits.—W. G. Gano.

"Spraying of Grapes."—E. J. Baxter.

MARCH 15.—Meeting at club rooms

ACME Pulverizing Harrow
Clod Crusher and Leveler
SENT ON TRIAL
To be returned at my expense if not satisfactory.
I deliver free on board at New York, Chicago, Columbus, Louisville, Kansas City, Minneapolis, San Francisco, etc.
Agents Wanted
SIZES 3 TO 13 1-2 FEET
The best pulverizer — cheapest Riding Harrow on earth. We also make walking Acmes. The Acme crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made entirely of cast steel and wrought iron—indestructible.
Catalog and Booklet, "An Ideal Harrow," by Henry Stewart, mailed free.
DUANE H. NASH, SOLE MFR., MILLINGTON, NEW JERSEY, and CHICAGO.
PLEASE MENTION THIS PAPER.

IRON AGE IMPLEMENTS
are better than ever.
No. 6 Iron Age Double and single Wheel Hoe Hill and Drill Seeder.
Two tools you need now to make this year's profits greater. Write for the new Iron Age Book, showing the full line. Full of ways to save work. FREE.
BATEMAN MFG. CO.
Box 506 Grenloch, N. J.
Improved-Robbins Potato Planter.

VIRGINIA BEAUTY APPLE—THE HIGHEST QUALITY YET ATTAINED
Holds its fruit and keeps better than Jonathan, has fruited heavy crops here for the past 20 years, and the best commercial apple in the West. Also have a good stock of other apple, peach, cherry, plum, etc., grape vines, small fruits, ornamentals, forest trees, etc. We have mailing size trees of Virginia Beauty. Send for catalogue.
Titus Nursery, Nemaha, Neb.

Schulze Trees Fruit
Where Others Fail. RESULT of
BEST WHOLE ROOT PROCESS
PEDIGREE TREE. FINEST 300 ACRE NURSERY.
WE PAY FREIGHT. Planters' Guide and Fruit Book Free. FIVE New Money and Orchard Kings. Large stock Apple, Peach, Pear, Cherry and Plum.
SCHULZE BROS., Brussels, Ill., Deer Plain, Ill., Etc.

HAWKEYE GRUB AND STUMP MACHINE
Works on either Standing Timber or Stumps. Pulls an Ordinary Grub in 1½ Minutes.
Makes a Clean Sweep of Two Acres at a Sitting. A man, boy and a horse can operate it. No heavy chains or rods to handle. You cannot longer afford to pay taxes on unproductive timber land. Illustrated catalogue Free, giving prices, terms and testimonials. Also full information regarding our I. X. L. GRUBBER, IRON GIANT GRUB & STUMP MACHINE, 2-HORSE HAWKEYE and other appliances for clearing timber land.
MILNE MFG. CO., 788 8th St., Monmouth, Ill. Address Milne Bros. for Shetland Pony Catalogue.

TANKS FOR SPRAYERS
We make any size tank or barrel for any make of spray pumps. Any special size tanks made to order. Send description of what you want.
APPLE BARRELS IN SEASON.
J. A. SCHROER & CO. St. Joseph, Mo.

Secrets of Fruit Growing.
A new book by Charles A. Green, with 150 photographs, printed in finest style, unlike anything ever published. Prepared at great expense. Illustrations tell more about fruit growing than a dozen books. The price of book is 25c, but we mail it for 10c, if you mention this paper. Our fruit catalogue will be sent free with this publication. Send 10c and get both. Address Green's Nursery Company, Rochester, N. Y.

100,000 RASPBERRY PLANTS
Kansas, Gregg, Cumberland, Munger, Hopkins and Palmer. New Cardinal Raspberry, Thwack and Miller Red Raspberry, Early Harvest Blackberry.
All leading varieties of Strawberries. Write for price list.
Elmhurst Nursery and Fruit Farm
M. E. Chandler. ARGENTINE, KAN.

Mention this Paper.
EVERGREENS
Hardy sorts, Nursery grown, for wind breaks, ornament and hedges. Prepaid $1 to $10 per 100. 50 Great Bargains to select from. Write at once for free Catalogue and Bargain Sheet. Local Agents wanted.
D. Hill, Evergreen Specialist, Dundee, Ill.

Geneva Nurseries

CHERRY TREES

A large stock of all the leading western varieties, on which we will make special prices until surplus is reduced.

APPLE TREES

The finest we have ever grown; good assortment of varieties; prices right.

Apple Grafts

Any style of graft made to order. We employ only experienced workmen ,and invite comparison with the grafts put out by any other shop in the West. Samples sent on request.

Imported Stocks

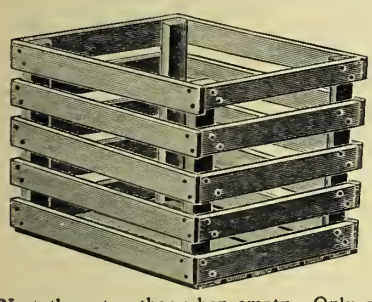
We import direct from the best growers in France and can guarantee our grades.

We also have a good general line of nursery stock, including Peach, Plum, Pear and Shade Trees, Grape Vines, Small Fruits, Shrubs and Roses.

Clean certificate of inspection with each shipment. All stock fumigated before shipment if purchaser desires. Correspondence carefully and promptly answered.

Youngers & Co., Geneva, Neb.

Ventilated Bushel Crate



Nest three together when empty. Only perfect crate on the market. Price, ready to put together, $7 per hundred. Write for full particulars to

The Geneva Cooperage Co.
Geneva, Ohio.

$ ONE DOLLAR

pays for enough of my celebrated

White Elephant Corn

to plant an acre. Has yielded 166 bushels on one acre. The largest corn grown. Ears have weighed 33 ounces; 37 ears to one bushel. Sure cropper. Especially adapted to the South. Very prolific. Strong and luxuriant. Resists drought. I send for one dollar enough of this magnificent variety to plant one acre delivered free to your office. Circulars free. Send now and get a start in this wonderful white corn.

J. B. Beagley, Sibley, Ill.

Look Here!

Nursery grown Tulip Poplars, one and two years old; nice, clean, thrifty-growing stock, at low prices. I can supply any size from 2 ft. to 6 ft. Collected stock much cheaper. American Beech and Calycanthus seedlings, 1 to 3 ft., at rock bottom prices. All goods well packed in plenty of good moss. Please ask for prices on anything you want begore placing your order elsewhere.

TAYLOR PERRY, Jr.
Roleta, Tenn. Irving College, Tenn.

FRUIT STOCKS

APPLE, PEAR, PLUM, CHERRY and QUINCE

Send list of what you can use and we will mail estimate of cost.

THOMAS MEEHAN & SONS
GERMANTOWN, PHILADELPHIA, PA.

DEWEY CLING PEACH

Can show "Gilt Edge" testimonials. Do you want to read them? Can be had by asking. "Introducer."

H. W. JENKINS, Boonville, Mo.

of Coates House, Kansas City, Mo., at 1:00 o'clock.

"Green Manures."—Col. J. C. Evans.

"Orchards and Poultry; How to Combine Them Profitably.—W. D. Cellar, Mr. Wilson.

Written Report on Raspberry Fields. —H. S. Wheeler.

"Alfalfa.—Edwin Taylor.

APRIL 19.—Meeting at Club Rooms of Coates House, Kansas City, Mo., at 1:00 o'clock.

"Best Machinery for the Fruit Farm" —M. E. Chandler.

"Cherries on the Kaw Bluffs.—J. S. Perkins.

"Fungus Diseases of Apples.—Prof. John T. Stinson.

Written Report on Orchards.—J. A. Thompson.

MAY 17.—Meeting at L. A. Goodman's, Westport, Mo., at 10:00 o'clock.

"The Honey Bee; Its Economical Value."—Albert Cox.

"Poetical Imagery Derived from the Vegetable World.—Mrs. T. Lee Adams

Report on Entomology.—Prof. J. S. Hunter.

"Botany."—Prof. M. C. Finley.

JUNE 21.—Meeting at Dan Carpenter's, Gashland, Mo., at 10:00 o'clock.

"The Last Word on the Strawberry." —Judge Geo. Holsinger.

"Conservation of Moisture."—Clarence A. Chandler.

"Irrigation of Fruits."—Clarence V. Holsinger.

Paper.—Mrs. Homer Reed.

Report on strawberry condition.

JULY 19.—Joint Meeting With Wyandotte County Society, at Kerr's Park at 10:00 o'clock.

"Revelations of the Back Yard."—Mrs. Ambrose Key.

"Grape Calamities."—Geo. Espenlaub.

Report on Blackberries.

AUGUST 15.—Meeting at Parkville, Mo., at 10:00 o'clock.

"How Do the Vineyards on the Rhine Compare With Those in the United States."—Dan Carpenter.

"A Selection of Shade, Shrubs and Ornamental Trees."—L. A. Goodman.

"Cold Storage of Fruits and Vegetables."—G. L. Holsinger.

"Disposition of Horticultural Products."—Howard B. McAfee.

Report on Vineyards.

SEPTEMBER 20.—Meeting at M. E. Chandler's, Argentine, Kan., at 10 o'clock.

Paper—G. H. Van Houten.

"Landscape Gardening."—S. J. Hare.

"When, How and What to Spray."—Prof. J. C. Whitten.

Reading—Mrs. Asa Chandler.

Report on Summer Apples.

OCTOBER 18.—Meeting at Edwardsville, Kan., at 10 o'clock.

"A Twenty-five Acre Farm"—Homer Reed.

"How Best to Fertilize Our Lands." —Major F. Holsinger.

"What Is the Secret of Success in Horticulture?"—M. L. Thompson.

Paper.—Miss Gertrude Taylor.

NOVEMBER 15.—Meeting at Club Rooms of Coates House, Kansas City, Mo., at 1:00 o'clock.

"Experimental Horticulture."—Prof. Albert Dickens.

"Does it Pay to Renew Old Orchards.?"—A. Chandler.

Report on Apples.—Judge Fred Wellhouse.

"Pears."—H. S. Wheeler.

DECEMBER 20.—Meeting at Club Rooms of Coates House, Kansas City, Mo. ,at 1:00 o'clock.

"Success and Failure."

General Discussion. Election of officers. Report of secretary. Report of Treasurer. Appointment of committees.

The condition of the peach buds was discussed. The opinion generally was, the peach was badly injured. Col. Evans said they were little better at Olden.

Asa Chandler read an article from some paper on "Pear Blight and How Contracted." The president said he thought the subject barred, but as there was no regular program for the day it might come in. The members generally were of the opinion the writer was a theorist, rather than a practical fruit-grower, or he would be less sanguine.

Of varieties of peaches a number were recommended for planting to insure a continuation of fruit. The list that seemed to have most friends was Greensboro, Triumph, Early Rivers, Mountain Rose, Family Favorite, Elberta, Kalamazoo, Smock, Piquetts, and Salway.

These meetings are pleasurable occurences. The society has been in continuous operation for thirty-two years. I had the good fortune to be present at the first meeting and have missed but few. They have been real feasts to me. Many, many of those who were among the originals have long since passed over the Great Divide. Others who were centrally located, have seen their farms platted and fine palatial homes stand where they were wont to raise the strawberry, the raspberry and other fruits. Electric lines now pass through their grounds, while asphaltum streets have supplanted their drive ways. Parks in some instances beautify the surroundings, while the former possessors are living a life of luxury and ease, some in California, some in the far East.

The faithful few who still remain with the grand old society, are whitened with the frosts of time, their minds enriched and broadened by an application to the study of plants, fruits and flowers, the most beautiful and benignant of God's professions.

FRANK HOLSINGER.

Will B. Otwell Honored

The Illinois commissioners to the St. Louis World's Fair have chosen Will B. Otwell of Carlinville, Ill., as superintendent of the agricultural exhibit to be made by the state at the big exposition next year. This is certainly a compliment to the ability of Mr. Otwell,

who has for a number of years been working to build up the agricultural interests of his state. Mr. Otwell is known to many of the readers of the Western Fruit-Grower personally, and to more of them by reputation, and we feel sure all of them will join us in extending congratulations.

SMALL POX.

This dreadful disease is now very prevalent in all parts of the country, and, as exposure to its malignant breath is liable to occur at any time, no matter how careful we may be, it behooves everyone to take proper precautions to prevent the germs from affecting the body. The doctors say that pure blood, good digestion and regular bowel movements materially aid the body in resisting attack, hence it is the course of wisdom to purify and strengthen the system without delay. A most effective remedy for this purpose—one that combines the necessary properties for purifying the blood, strengthening the kidneys, toning up the digestive organs and for cleansing and regulating the bowels, will be found in the well-known system tonic and purifier, Prickly Ash Bitters. This valuable remedy is the right thing for putting the body in shape to resist the effect of exposure to Small Pox. No one will knowingly expose himself to this disease. The exposure usually takes place when it is least expected, therefore the need of precautionary measures is the more urgent. It is safe to say that the frequent use of Prickly Ash Bitters while the disease is so prevalent will keep the body in such fine physical condition that no ordinary exposure will affect it.

BUSINESS OPPORTUNITIES FOR ALL.

Locations in Iowa, Illinois, Minnesota and Missouri on the Chicago Great Western Ry., the very best agricultural section of the United States, where farmers are prosperous and business men successful. We have a demand for competent men, with the necessary capital, for all branches of business. Some special opportunities for creamery men and millers. Good locations for general merchandise, hardware, harness, hotels, banks and stock buyers. Correspondence solicited. Write for maps and Maple Leaflets. W. J. Reed, Industrial Agent, 604 Endicott building, St. Paul, Minn.

Peach Trees

80,000
1—2 ft., 2—3 ft., 3—4 ft., 4—5 ft., 1 year.

400,000
Dormant Buds

50,000
Apple, Plum and Cherry

Plain trees at plain living prices. Reliable trees not sold for less and money cannot buy them better. Enough said here. Our catalogue free.

Woodview Nurseries
Box 99. URIAH, PA

The Forest Oak Nursery

Situated at COATSBURG, ILL.,

Wishes to call special attention to the fine line of Nursery Stock, Plants, Vines, and other Ornamentals, which it has to offer. Also to the Tree-Paint which is manufactured to prevent rabbits from gnawing trees, and also to keep borers out. It has been thoroughly tested for years, and proves satisfactory in every instance. Give it a trial and be convinced.

I also wish to call special attention to my new peach, the Illinois, which I will have for sale to my customers the fall of 1902. This peach weighs ½ lb. and will be one of the leading varieties of peaches.

Louis H. Frese, Proprietor
COATSBURG, ILL.

Tree Balers...
...Box Clamps

We Manufacture the Thomas Tree Baler and Box Clamp.

Recommended by leading nurserymen who say they are worth more than whole cost even for one packing season. Send for circulars and prices to

J. W. Stevenson North Bend, Neb.

Sweet Trees Grow and Bear Fruit.

If you desire the very best fruit trees that can be grown—large, smooth, disease free, true to name, well rooted, fresh dug, trees, buy our

GENESEE VALLEY TREES.

We have Apples, Plums, Pears, Cherries, Peaches, Apricots, Quinces, Grapes, all kinds of Asparagus, Rhubarb and Ornamental Deciduous Trees. Every standard variety and many tested new kinds. Our new catalogue names and describes each. Gives much valuable information to orchardists, fruit growers and others. Write for a copy today. Sent free.

The Geo. A. Sweet Nursery Co.,
Box 1745, Dansville, N. Y.

Buckley Garden Plow—A thoroughly business proposition; 9 practical changes; profit on every attachment. Write R.C.Buckley, Peoria,Ill.

Catalogues Received

Perhaps in no former year have the catalogues of nurserymen, seedmen, etc., been so well printed and so interesting. The catalogue of today differs greatly from the plain ones of a few years ago, and the change is much for the better. Among the catalogues received by The Western Fruit Grower are the following, and, unless otherwise noted, any of them will be sent free to those who mention this paper:

Charlton Nursery Co., Rochester, N. Y.—This is a large wholesale nursery, with a general catalogue, which is one of the very finest we have seen. Especial attention is paid to roses, and the list of hybrid perpetual roses catalogued is certainly very fine. We do not know whether this catalogue is for general distribution, but if it is it is certainly worth having.

H. S. Wiley, Cayuga, N. Y.—General nursery stock for retail trade; prices quoted. Especial attention paid to trees from which scions are taken. Lists mail order bargain collections which are of interest.

Shenandoah Nurseries, Shenandoah, Iowa—This firm issues a wholesale and a retail catalogue, the former for nurserymen only. Both are plain business catalogues, and in keeping with the splendid line of stock handled by this nursery.

John W. Hall, Marion Station, Md.—Berry plants and second crop seed potatoes. Seed corn, asparagus roots, etc., are also listed.

Fairbury Nurseries, Fairbury, Neb.—General line of nursery stock for retail trade, with especial attention paid to needs of Western planters. This catalogue is from the press of Western Fruit Grower, and naturally we think it a good one.

Titus Nursery, Nemaha, Neb.—This is a very neat catalogue, describing general line of stock fo rthe retail buyer. Special attention is called to the manner of selecting scions, only those from selected individual trees being used. From press of Western Fruit Grower.

Humboldt Nurseries, Humboldt, Neb.—General retail catalogue. A good catalogue, from press of Western Fruit Grower.

F. B. Orton, Kiowa, Kan.—A small, neat catalogue describing list of retail stock; the needs of the southwestern country are particularly considered. From press of Western Fruit Grower.

Yarbrough Bros., Stephens, Ark.—General retail catalogue. Located in southern part of Arkansas, the wants of planters in that section can be supplied. Press of Western Fruit Grower.

Homer D. Brown, Hamilton, Ill.—A small catalogue for the busy planter; general line of stock listed. From press of Western Fruit Grower.

Brock Nursery, Brock, Neb.—General retail list of stock. Printed by Western Fruit Grower.

J. M. T. Wright Nursery Co., Portland, Ind.—General line of nursery stock for retail trade; also seeds for the business planter. From press of Western Fruit Grower.

Gardner Nursery Co., Osage, Ia.—This firm issues both a retail catalogue and a wholesale list for nurserymen. Located in the extreme northern part of Iowa, this firm makes a specialty of hardy stock; a specialty is also made of evergreens.

Allen L. Wood, Rochester, N. Y.—General line of small fruit plants, grapes, etc. The McKinley Early grape is listed for first time. For those who want trees with their order for small fruit plants Mr. Wood has added a department in which trees are listed.

Geo. A. Sweet Nursery Co., Dansville, N. Y.—General line of nursery stock for retail customers. Special claims are made for stock grown by this firm, which has an excellent reputation.

New Haven Nurseries, New Haven, Mo.—Owing to the heavy demand for stock this well known firm issues only a small price list, quoting prices to retail customers. Specialty is made of peach and apple trees for commercial planters, but a full line of stock is carried. Bargain mail orders of Kieffer pear trees are listed.

Eugene Willett, North Collins, N. Y.—Issues both wholesale list for nurserymen and general list for retail trade. Grows grape vines and small fruits.

T. S. Hubbard Co., Fredonia, N. Y.—Well known as large growers of grape vines and small fruits. Issues both wholesale and retail lists. The retail list is especially valuable, for it contains much matter of interest to grape growers.

D. Brandt, Bremen, Ohio—Small fruits and grapes. Full line of strawberries catalogued.

F. W. Dixon, Holton, Kan.—Small fruit plants, grapes, etc. Specialty is made of strawberries and raspberries, and a full list is catalogued, and plants are said to be extra fine this season.

O. A. E. Baldwin, Bridgman, Mich.—Small fruit plants, grape vines, etc. Specialty of strawberries.

W. S. Todd, Greenwood, Del.—Strawberry plants, with full list of varieties catalogued.

Lewis Roesch, Fredonia, N. Y.—A very neat catalogue of grape vines and general nursery stock.

Flansburgh & Peirson, Leslie, Mich.—Strawberry plants and seed potatoes, also seed corn. Several new strawberries are listed.

West Michigan Nurseries, Benton Harbor, Mich.—Full line of nursery stock, with especial attention paid to the peach.

Storrs & Harrison Co., Painesville, Ohio—This is a combination seed and nursery catalogue, for this firm is a pioneer in both lines. Catalogue is complete, for the company does only a mail order business, and is prepared for it.

W. A. Burpee & Co., Philadelphia, Pa.—This catalogue is, as usual, one of the very best. Perhaps no seed catalogue is as carefully prepared as this one. A full line of seeds of all kinds are listed, and the needs of the mail order customer are carefully looked after, for that is the way the entire stock of seeds is sold.

James Vick's Sons, Rochester, N. Y.—Full line of seeds and also small fruit plants. In seeds a specialty is made of asters, and an unusually fine collection is catalogued.

Iowa Seed Co., Des Moines, Iowa—A very complete catalogue, listing seeds of all kinds, lawn fertilizers, birds and bird cages, gold fish, etc.

John A. Salzer Seed Co., LaCrosse, Wis.—Small fruit plants, rose bushes, flowering plants, and a full line of field, garden and flower seeds. A large catalogue, full of information.

Vaughan's Seed Store, Chicago, Ill.—Full line of seeds and blooming plants, with special list of small fruit plants for amateur planters. A very complete line of garden tools and implements is listed.

E. M. Marvin, Sun, Newaygo County, Mich.—Price list of seed potatoes, of which a specialty is made.

Harry N. Hammond Seed Co., Bay City, Mich.—A strictly business seed catalogue, in which are listed all the sorts which are recognized as staple varieties.

L. L. Olds, Clinton, Wis.—A very neat seed catalogue, listing a full line of seeds, but with special attention paid to seed corn and Irish potatoes. A very fine assortment of both are described.

L. L. May & Co., St. Paul, Minn.—General seed catalogue, making a feature of claims for northern grown seed.

Hawkeye Seed Co., Des Moines, Iowa—This firm succeeds the old Livingston Seed Co., and issues its first general catalogue, listing full line of seeds, and also will quote prices on berry boxes, grape baskets, etc., on application. A feature is made of seed corn this season.

James J. H. Gregory, Marblehead, Mass.—This is one of the old reliable seed catalogues, for, being a pioneer in the mail order seed business, this firm knows how to get up a catalogue for business farmers. Mr. Gregory is well known as a writer of many books on agricultural and gardening topics, and the firm has a large business.

H. W. Buckbee, Rockford, Ill.—Complete line of seeds, flower, field and garden. A nice collection of seeds and the catalogue will be sent for 10 cents, to cover postaage.

Missouri Valley Seed Co., St. Joseph—A catalogue for the practical planters; all standard sorts are listed, with few frills; garden tools and implements, spray pumps, berry boxes, crates, etc., are also handled and listed in catalogue.

John Lewis Childs, Floral Park, N. Y.—A 136 page catalogue containing lists of seeds, plants, bulbs and some rare new fruits.

A. A. Berry Seed Co., Clarinda, Iowa—Full line of farm and garden seeds. Needs of western planters especially considered.

R. M. Kellogg, Three Rivers, Mich.—This is more than a catalogue, for it contains much information concerning Mr. Kellogg's method of propagating small fruit plants. As our readers know, a specialty is made of the strawberry. The book is very interesting and helpful.

Conard & Jones Co., West Grove, Pa.—This firm makes a specialty of roses and plants for outdoor planting, and is a leader in this field. Special bargain collections are listed which are very attractive. In addition to the plants, flower seeds are quoted, and some of the newer varieties of fruit for testing.

Field Force Pump Co., Lockport, N. Y.—Makers of spray pumps of all kinds. A full line is illustrated, and the Orchard Monarch Power Sprayer made by this firm and described in catalogue, will interest all of our commercial orchardists.

The Deming Company, Salem, Ohio—This catalogue contains illustrations and descriptions of the different patterns of pumps made by this well known firm. All kinds of pumps are shown from the small hand pump to the large power pump operated by an engine.

In writing for any of the catalogues here described our readers will do us a great favor if they will kindly mention the Western Fruit Grower.

Notes by the Way

To preserve the underground ends of posts and stakes, make a solution of four pounds copperas in twenty-five gallons of water, in which soak the ends thoroughly; let them dry and they can be used, says an exchange.

New York fruit growers have passed resolutions opposing any proposed scheme to use government funds to irrigate the arid sections of the West, claiming that they cannot compete with farmers who have the advantage of cheap, new, fertile lands.

Perhaps nothing indicates a better condition of affairs among farmers than the increasing interest in the subject of maintaining soil fertility. Most up-to-date farmers nowadays realize that it is much easier to maintain soil fertility than to restore it after it has been lost.

In our mention of new fruits last month we failed to mention the Illinois peach, propagated by L. H. Frese, Coatsburg, Ill. This is described as one of the largest peaches grown; specimens weighing half a pound each; yellow, with dark red cheek; flesh yellow to the stone, from which it parts freely; rich and delicious quality, very best. Season, October.

Henry Hansen, of the Humboldt Park Poultry Yards, Chicago, in sending his renewal, says: "I find the poultry department in the Western Fruit Grower a better guide to poultry culture than are many of the poultry papers published. I only wish the Western Fruit Grower was a weekly, so I could stop all other papers except it. No one interested in poultry or fruit should fail to have it."

A. O. Boicourt, Martinsburg, Mo., takes exceptions to Mr. Hale's criticism of Ben Davis apples, and says he sells ten trees of other varieties to one Ben Davis tree, and yet the persons to whom he sells trees get their supply of fruit largely from the Ben Davis trees. This bears out the statement made by Prof. Goff of Wisconsin, that Ben Davis "gets there." Mr. Boicourt believes in cultivating orchards for first three or four years, and then mulch heavily with clean straw.

About the first week in February I cut potatoes as for planting, and lay them in a warm place a few days until the cut side is somewhat dried. Then I take a box and put in a layer of dirt one inch deep, a layer of potatoes with the cut side down, then another layer of dirt one inch deep, and continue until I have three or four layers of potatoes, keeping them well moistened and in a warm place until planting time, when they will have good sprouts and roots. If there is any danger of frost after they are up I hoe dirt over them. I tend them well and have potatoes three or four weeks sooner than when I cut them at planting time.—O. W. Allison in Epitomist.

The New York State Fruit Growers' Association, the organization composed of the commercial growers of that state, held a very successful meeting at Syracuse last month. Officers were elected for the ensuing year as follows: President, Lucien T. Yeomans, Walworth; first vice president, J. T. Roberts, Syracuse; second vice president, J. B. Collamer, Hilton; third vice president, Albert Wood, Carlton Station; fourth vice president, Ira Pease, Oswego; secretary, F. E. Dawley, Fayetteville; treasurer, Charles H. Darrow, Geneva; executive committee, T. B. Wilson, Hall's Corners; Dr. C. A. Ring, Appleton; S. W. Wadhams, Garland; W. L. McKay, Geneva; James Wood, Mount Kisco.

Growers of apple seedlings report the demand as exceptionally heavy, showing there will be heavy planting of apple grafts in the spring.

If you want to treat your potato cuttings before planting to free them from scab soak them for two hours in a solution of half a pint of formalin to fifteen gallons of water. This will destroy the germs of disease on the potatoes, although, of course, the tubers grown in a field which was infected with scab the year before will be attacked from spores of the disease which were in the soil.

F. W. Taylor, chief of agriculture and acting chief of horticulture of the St. Louis World's fair, says it is the intention of the Exposition Company to have all the agricultural, horticultural and dairy exhibits in one building, covering thirty acres, to be the largest building ever constructed. It is not believed this plan will please either the strictly agricultural exhibitors, the horticultural or the dairy exhibitors.

Gerald Holsinger of Rosedale, Kan., who left the fruit farm to take charge of the machinery of the Swift and Company packing plant at Kansas City, two years ago, has tendered his resignation, and will go back to fruit growing. Mr. Holsinger was educated at the naval academy at Annapolis, and after serving a time in the service of Uncle Sam, resigned, and went back to the farm. He has gone back to fruit growing for good this time, not feeling satisfied anywhere else.

Homer D. Brown, Hamilton, Ill., sends us description of a new apple which he will introduce next season. It is called Ben Bolt, and Mr. Brown says it is no doubt a seedling or sport of Ben Davis. It originated on the farm of David Bolt, Lima, Ill., and the tree is almost identical in growth with Ben Davis. The fruit is similar to, but superior, to the Ben Davis, being solid red in color, with no stripes, and quality is better. The tree has been bearing for ten years, and its productiveness is same as Ben Davis.

There is danger that the planting of potatoes will be very large this spring, and consequently low prices be realized next autumn. The high prices now being paid for potatoes has induced a very heavy planting in the South, and the growers in that section who get their potatoes on the market early, will naturally get good prices. But the grower in this section will likely find himself in competition with not only these potatoes, but also with those of hundreds of others who have been led by the high prices to plant extensively. The only thing which will check heavy planting will be the high price of seed potatoes.

D. C. Overly, Hartford, Kan., says he has been in the fruit business for nine years, and last season, when the drouth set in, he kept the disc and harrow going, keeping his orchard soil under a dust mulch. His neighbors told him he would kill his trees by so much cultivation, but he sold $702 worth of apples from six acres, which he thinks is a good showing for trees eight years planted. He sold $500 worth of Early Richmond cherries from one acre. A neighbor sold his apples for $70 per acre, the trees five years planted. Mr. Overly says his neighbors, who do not cultivate, say it doesn't pay to try to grow fruit.

W. S. Butler, Chetek, Wis., writes that in the spring of 1897 he found a chance strawberry plant in a field of raspberries, where strawberries had never been planted. He cared for the plant, transplanted it, and when it came to fruiting it was found to be of exceptional value. Mr. Butler says it is of size and season of Warfield; the plant is more vigorous than Warfield, free from rust; the berry is shaped like Crescent, smoother, darker colored, being blood red to the center; the berry is unusually firm, remaining sound several days after opening; the quality of the berry is very high, the flavor being delicious. Mr. Butler will have the berry thoroughly tested and later introduced. It is as yet unnamed.

NOTICE.

On another page of this issue of our paper will be found the advertisement of the Watkins Medical Company of Winona, Minn. These people are the sole owners and manufacturers of the famous Watkins Remedies. These remedies are not new and untried preparations, for they have ben upon the market and in daily use over a very large section of the country for the past thirty-four years. We do not doubt but that many of our readers are perfectly familiar with and are now using Watkins Remedies. They have stood the most rigid test of all these years and are more popular with the people today than ever before. This could not be true but for the fact that the remedies are made upon honor and sold on their merits. The responsibility of the Watkins Medical Company is entirely beyond question. Ask your banker, any reputable business man or refer to Bradstreet and Dun's Commercial Reports. Write them for a free copy of their Home Doctor and Cook Book. This will serve to acquaint you with these people and gives at the same time valuable information, weather forecasts, cooking recipes, etc. Address

THE I. R. WATKINS MEDICAL CO.,
36 Liberty St., Winona, Minn., U. S. A.

HOW ABOUT PRUNING SHEARS?

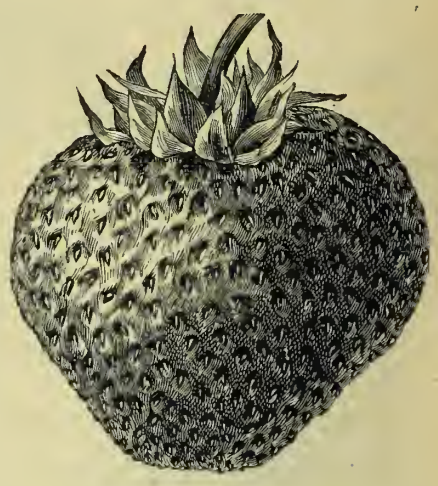
In an advertisement elsewhere in this issue, the Western Fruit-Grower offers some splendid pruning shears free as premiums for new subscribers, or they will be sent for cash. Read the offer, and get the shears at once, for you need them. Read what a nursery firm says:

"Your pruners just received, and they are all you claim for them. For ordinary use we like the small size the better.—Hart Pioneer Nurseries, Fort Scott, Kan.

Great Crops of

Strawberries

And How to Grow Them



Is the title of a book which has worked a revolution in strawberry growing.

It treats of the philosophy of plants and answers every question under contention in the Western Fruit-Grower during the past three months and does it so plainly that a child can comprehend it.

The most perfectly developed plants for spring planting to be found in the country.

During the year this establishment has been visited by the most eminent horticulturists in nearly every state in the Union and pronounced the most perfectly equipped in the country.

Send for the book at once.

R. M. Kellogg

Three Rivers, Mich.

Your Plants

cannot succeed with insects eating at them continually.

EEXXTIRM

destroys all insects of every description, and is non poisonous. ::: It will kill insects on animals, chickens, birds. Insects breathe through their bodies, having no lungs and for this reason it does not require a poison to kill them.

EEXXTIRM

Is put up in cans at $1, $2, $3 and $5 per can. Sample packages sent postpaid to any address for 25c.

THE

Ruth Mfg. Co.

ST. LOUIS, MO.

Going to Spray This Season?

Of course you are--can't afford not to, when you can do the work as cheaply as by the plan we propose. Prospects indicate a full crop of apples. Before you get ready to spray consider

The Hillis Dust Sprayer

and the Dust Process of Spraying

Everybody Needs a Hillis Dust Sprayer

It is suited to the needs of everyone. For a small orchard or garden, one machine will suffice. For a large orchard more may be used to advantage. For instance, three machines can be carried in a light wagon, together with a supply of powders. With two men to operate the sprayers and a boy to drive and fill the third sprayer, twenty acres of orchard can be thoroughly sprayed in one day. As fast as a sprayer is emptied the operator will take the one the boy has filled, and thus no time is lost. Such an outfit as this costs $15, and 20 acres can be sprayed in a day.

Can you think of any other plan you can use by which your orchard can be sprayed so well and so cheap?

Try the Hillis Dust Sprayer and be Convinced

Why haul great loads of water around to use as a conveyor of the poison and fungicides to your trees? Water adds nothing to the effectiveness of the spray. The Hillis Dust Sprayer is made to apply lime dust and poison in dry form—and it is these ingredients which do the work—water doesn't help any.

Hundreds of the Hillis Dust Sprayers were used last year, with the greatest success. Thousands more will be needed this year and your order should be sent in early. There are many testimonials we could print here, but space is too valuable. They will be sent to those who are interested.

There are several points we want you to remember:

You must fight insects and fungous diseases, and the work must be done cheaply and in a hurry.

With a good apple crop everywhere this season—as now seems probable—your second grade, wormy, scabby apples will not pay you. You can't afford to raise this kind of fruit any year, especially when the crop is large.

The Hillis Dust Sprayer costs less than a liquid spray pump, in the first place and costs less to operate.

It applies the dust very effectively and rapidly.

Fifty gallons of water are needed to apply four ounces of paris green to trees. A few pounds of lime will do the same work—and do it better.

Do cabbage worms bother you? The Hillis Dust Sprayer, and the powders we furnish, are just the thing. The worms on tobacco, cucumbers, melons, etc., are also destroyed by one thorough application.

We have a little folder we want to send you. Write for it today.

Hillis Dust Sprayer Co., St. Joseph, Mo.

Notes by the Way

I value the Western Fruit-Grower above every other paper I receive.—J. H. Patterson, Wheeling, Mo.

Is your name in the "honor roll" of those who have sent five or more new subscribers? If not, won't you try to put it there?

California growers are planting largely of cling peaches. Doubtless they are for the canneries, for cling peaches from California would hardly be in demand on our eastern markets.

March and April were our big months in subscriptions last year. Lots of subscriptions expire during this time. When you renew your subscription send some new subscribers. Fill out a "Five-for-a-Dollar" blank, anyway. It can be done easily by every subscriber.

It is announced that F. W. Taylor, well-known for his connection with the Omaha and Buffalo expositions, has been appointed chief of the agricultural department of the St. Louis World's Fair.

Florida melon growers perfected a good organization last year, and by so doing were very successful. As a result, the acreage in melons will be greatly increased this year. A Georgia syndicate alone will plant 700 acres of watermelons and cantaloupes.

All the nurserymen report an unprecedented demand for stock. If you contemplate planting any trees in the spring send your order to your nurseryman now. And the same is true of garden seeds. Many varieties of seeds are getting scarce and prices are rising. This is especially true of good seed corn. Read our ads and order at once.

Advices from St. Louis says the nearby crop of strawberries this year will be a light one if the many reports now being received by commission men are correct. The heat and drouth during the past summer is attributed as the cause. In many sections the plants were entirely burned up by the sun, while in other sections they were more or less damaged. A good many growers will of course put in new plants, but at best, a light crop is looked for.

Last week was the first time I saw the Western Fruit Grower, and when I first looked at it I thought "This paper is of no use to me, as I have but a few trees." But on looking over the paper I became interested, and inclose $1.20 for six subscriptions, and will do all I can for the Western Fruit Grower, for I like it.—George Hayden, Jacksonville, Ind. (That is the way our subscription list is growing. Are you doing your part?—Ed.)

New York State has a law requiring that apple barrels shall hold full three bushels, and now a bill has been introduced in the legislature requiring that berry boxes shall hold a full quart or full pint, as the case may be. Boxes which contain a wine-measure quart must be plainly marked "short," and this mark must be on every box, too. The passage of this law will simply mean that growers in Missouri, Kentucky, Tennessee and other states which use the "short" wine-measure quart must either mark their boxes before shipping or else not ship to New York State. Buffalo commission men, who handle large quantities of berries from the states named, will endeavor to have the bill amended so that they can mark the crates short, instead of having to mark each box. They could not do the latter, of course.

The Western Fruit-Grower is the best paper of the kind I have ever seen.—Geo. L. Gast, Le Claire, Iowa.

Always mention the Western Fruit Grower when you write to any of our advertisers. It will secure good treatment at their hands.

Our special offer of five subscribers for $1 is for new subscribers only, please remember. No one who is well acquainted with the Western Fruit Grower would expect the paper regularly at 20 cents per year. It cannot be furnished for that.

The January number of the Western Fruit-Grower is hard to beat, and we trust the results of the enterprise will be as satisfactory to the publishers as they are to your subscribers and advertisers.—New Haven Nurseries, New Haven, Mo.

D. A. Rupp, Sidney, Iowa, says: "I showed the January number of the Western Fruit-Grower to a neighbor, and he at once gave me 50 cents to pay for the paper a year, to be sent to his address." That is the way to get subscribers—show your paper to your neighbors and ask them to subscribe.

We like the appearance of the Western Fruit-Grower very much, and wish to say that we are receiving from our ad many inquiries which we trust will result in sales. We have tried a number of fruit-growers' journals, but have always received the best results from the Western Fruit-Grower. — Saranac Electrical Mfg. Co., St. Joseph, Mich.

Nearly every one seems to believe that the apple crop of the present year will be an unusually heavy one. If this be true, and there is no reason to doubt it, all our readers should begin now to plan to grow only the best fruit. Second grade fruit was profitable last season on account of the scarcity of apples, but with a big crop all over the country it will not pay.

R. V. Baker, Spring City, Tenn., last year subscribed for the Western Fruit-Grower to be sent one year to each of five of his neighbors. This year he does the same for five other neighbors. Mr. Baker is a good friend, and writes: "I have picked out five young men who I think will appreciate the Western Fruit-Grower, and who ought to take it. I think the paper is the best I ever saw, and I have taken every horticultural paper that I ever heard of. I have paid for these subscriptions to help the young men, as they are beginners in horticulture, and I believe for them to read a good paper and learn what other men are doing is a good way to start."

The Alton (Ill.) Horticulaural Society elected the following officers for the coming year: President, E. H. Riehl; first vice-president, W. E. Carlin; second vice-president, Dr. W. H. Smith; secretary, Miss Hannah Davis; treasurer, F. Hoffmeister; librarian, H. G. McPike. In his annual report the president congratulated the members that owing to the fact that they had learned the value of thorough cultivation, their crops did not suffer from drouth last summer as did those of their neighbors. Strawberries promise a light crop this spring, on account of few plants, but very fine berries are expected. Peaches are about all dead, which Mr. Riehl says is a good thing, as it allows the growers to put their trees in good shape.

Lowell, Ark., growers are already advertising for buyers for their strawberry crop, which they say will be strictly first-class.

E. F. Stephens of Nebraska says he finds the January number of the Western Fruit-Grower alone worth $1, instead of a year's subscription being worth 50 cents.

A. J. Edwards, Fort Atkinson, Wis., says he wraps his apple trees with straw to protect against sunscald, rabbits, borers, etc. He uses rye straw, cut before the berry forms; it is tied at top, bottom and in the center. It will last two years.

Some of the readers of the Western Fruit-Grower didn't say a word about their appreciation of the January number of the Western Fruit-Grower; they simply sent from five to ten new subscribers, inclosed the money, and we did the rest. This is the kind of appreciation which counts—this is the kind we desire.

On Dec. 1, 1900, there were 300,000 barrels of apples in cold storage in Chicago, against 400,000 for last December. Yet on Feb. 1, last there were 25,000 barrels less in storage there than there were a year ago at same date. This shows how the apple crop has been moving, even at the present high prices. At Kansas City, however, the situation is unsatisfactory, as it is claimed there are 50,000 barrels still in storage, and holders are getting uneasy.

A new apple originated by H. P. Bales has been named British Columbia, from its birthplace. The tree is described as a vigorous grower and very hardy, annual, abundant bearer; the fruit is large, russet on yellow ground, sometimes striped with red, somewhat irregular; flavor is mild subacid of the highest quality; season January to June. The original tree is 24 years old, measures 60 inches in circumference, and is in perfectly healthy condition.

Pittsburg, Texas, is going into the truck business extensively. The local union there has 100 enthusiastic members. The members planted 100,000 peach trees this season, largely Elberta. They will also raise 300 acres of Irish potatoes, 200 acres of canteloupes, 100 acres of tomatoes. Texas is certainly destined to be a great state in this line, and we are pleased to note the increased circulation of the Western Fruit-Grower in Texas. Last month was a record-breaker in our Texas list.

Peaches are about all killed here, and pears are little better, writes W. M. Riggin, Madisonville, Ky. Strawberries and raspberries appear all right so far. We do not mulch strawberries, as a rule, but we run the risk of heaving. A few years ago I set a lot of raspberries in November. Running out of mulch, I left four rows bare, except that I turned a furrow against them with a diamond plow, thinking that would do, but they pulled clear out of the ground and were a total loss. Since then we set all our berries in spring.

A GREAT COMBINATION OFFER!

The Western Fruit-Grower is prepared to offer its readers good reading matter at a very low rate, as follows:

	Reg. Price
THE AMERICAN BOY (Undoubtedly the best boys' paper published)	$1.00
VICK'S FAMILY MAGAZINE (Leading Floral Magazine)	.50
WOMAN'S WORK, of Athens, Ga.	.50
WESTERN FRUIT-GROWER	.50
	$2.50

All One Year for $1.10

Write your name plainly, and address all orders to

Western Fruit-Grower
St. Joseph, Mo.

NOTICE.

This is the season when the editor's desk is favored with a large variety of catalogues in such lines as seeds and nursery stock. Of such recently received one of the most attractive is the book put out by the George A. Sweet Nursery Co. of Dansville, N. Y., advertisers in these columns. The book is very neatly printed and contains some interesting half tone views. This catalogue is sure to interest and instruct those engaged in fruit culture.

One of the novel methods of the Sweet Company is what they call "clubbing orders." They have no soliciting agents or salesmen and consequently are in a position to offer liberal inducements to buyers, who can combine and so take advantage of wholesale rates. Full particulars will be mailed with the catalogue on request.

Address George A. Sweet Nursery Company, Dansville, N. Y., and mention this paper.

NOTICE.

The German Nurseries, Beatrice, Neb., are advertising with us this season, as they have done in former years. This nursery is owned by Carl Sonderegger and was formerly located at Fairbury, Neb., but a year or two ago removed to Beatrice, where it is possible to have better shipping facilities. Mr. Sonderegger has equipped his nurseries with very complete buildings for housing and preparing his stock for shipment, so that any one ordering from him can feel reasonably sure of getting his stock in the best possible condition. Mr. Sonderegger's catalogue is printed in both English and German and any one contemplating the purchase of nursery stock will find it to his advantage to write for this catalogue before placing his order. Catalogue is sent free on request. In writing kindly mention having seen his ad. and this notice in our paper.

The Lightning Compressed Air Sprayer

(Patented, 1900.)
Holds 4 gallons. Pump in a little air with the pump which is attached to the reservoir. No more labor required. Will kill all kinds of insects. Will spray tall trees. Will spray two rows of potatoes at one time as fast as the operator can walk. Big money for agents.
D. B. Smith & Co. Utica, N.Y.

SPRAY PUMPS.
EXPANSIVE BUCKETS. | DOUBLE ACTING. | THOUSANDS IN USE.
Largest Pump and Hay Tool Works in the U. S.
CATALOGUE FREE.
Write for Particulars, Prices, etc.
F. E. MYERS & BRO. Ashland, O.

Ask your dealer for Myers' Pumps.

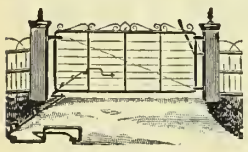
SPRAY PUMPS
Save money by buying one of ours. They will do as much work, being all brass are lighter to handle and are more durable; will generate a high pressure thereby making them the easiest pump to operate on the market. Write for catalogue and get treatise on spraying free. Agents wanted.
J. F. GAYLORD,
Successor to P. C. Lewis Mfg. Co.
KATSKILL, N. Y.

Spraying Materials
Blue Vitriol, Paris Green, London Purple, Carbonate of Copper, quantities to suit, also all fertilizing chemicals.
WHITELAW BROS. St. Louis, Mo.

A KIEFFER PEAR ORCHARD
For one dollar we will send by mail postpaid 12 nice little one year old Kieffer Pear trees. Order at once and ask for prices on other nursery stock.
J. BAGBY & SONS CO.
Box 25, New Haven, Mo.

NORTH STAR
...STAYMAN...
York Imperial, Ingram and other valuable apples, fifty kinds. CLIMAX, HUNT and other fine plums. KLONDIKE and other fine peaches. CARDINAL RASPBERRY an dother choice small fruits. Hardy, blight proof Pears a specialty. New catalogue free.
Riverside Nursery,
M. J. Graham, Prop. Adel, Iowa.

MANLOVE Self-Opening Gate



Will cost you one cent a week. How much will it save in a busy season? Our Catalogue will tell you how to save your poor old back.
Manlove Gate Co.
Milton, Ind.

If you want to
CULTIVATE YOUR ORCHARD
In the Best Manner and at the same time at least expense, write The General Agent for circulars of
Cark's Cutaway Extension Harrows
E. G. MENDENHALL, Kinmundy, Ill.

THE LINCOLN PEAR
"The best pear we ever tasted," is what everyone says about the Lincoln. Annual bearer, very hardy. Fruit large, solid, golden yellow, juicy and aromatic. Season, August and September. Very prolific. Handsome catalogue free. Agents wanted. Introduced and sold under copyrighted label exclusively.
W. E. JONES CO., Lincoln, Ill.

Apple Seedlings, Root Grafts
Put up to grow, any grade or style desired. Also a general nursery stock for sale at prices that are right. Send for price list.
Hawkeye Nurseries, Stratford, Iowa
W. H. KAUFFMAN, PROP'R.

100,000 Choicest Iowa Grown Fruit Trees for Sale
Other stocks in proportion. All stock well rooted and guaranteed to please. Cut prices on early orders. Honest price list free; write for it, naming your wants.
SYEMOUR NURSERIES
JOSEPH MILLER, Propr etor, Seymour, Iowa

PEACH TREES FREE!
50 Peaches fill a half bushel measure; Gooseberries, Grapevines, Strawberries; best varieties that grow. T. J PUGH, Fullerton, Neb.

TREES RELIABLE, HEALTHY, FRESH DUG. We grow them by the millions. Catalog free to everybody. SHEERIN'S WHOLESALE NURSERIES, DANSVILLE, N. Y.

Peach and Apple Trees—Good assortment. Also full line of general nursery stock. Plattsburg Nurseries, Plattsburg, Mo.

Grape-Growing in Oklahoma

Of the forty varieties of grapes in my experimental vineyard, the most satisfactory the past season was the Berkmans. This is a red grape, closely resembling the Delaware and of the same fine quality, but a much thriftier grower and heavier bearer, and clusters almost as large again as the Delaware. Whilst but two years old the vines produced a heavy crop of fine fruit and the vines made a fine growth, the wood is in perfect condition, which cannot be said of many other varieties.

Among the black grapes, I found the Wilder to be perhaps the best as a market grape. Fine, large berries, handsome clusters of good fruit. Of the white varieties I give the Gov. Ross first place. I have yet to find, however, a perfectly satisfactory white grape. The Niagara has been looked upon as our standard, but it is considerably short in point of quality and is decidedly shy in bearing after it reaches the age of five years. I would not advise intending planters to venture heavily with any variety of white grapes, as they are very poor market grapes.

Black or red grapes are decidedly better sellers. Of the wine grapes which I had a chance to test the past season, I consider the Othello the best, with Dr. Collier a close second.

Both of these varieties make an excellent wine, the color of the Othello juice being a delicate pink, the Dr. Collier a brilliant red; both of excellent flavor and fine bouquet.

Of course the old Catawba is a fine wine grape, but does not stand up well under the extremes of wet or dry seasons. If it be wet, it is almost impossible to prevent the fruit from rotting, and if quite dry the fruit does not mature properly, and the vines kill back.

The old Concord will, of course, occupy a prominent place in the grape world for some years to come, but it must be admitted to be a grape of very inferior quality as compared with many recent introductions of black grapes.

The Othello is a heavy grower, and with me, matured its wood perfectly, notwithstanding the vines bore ten to fifteen pounds of fruit each, this dry season, and were but two years of age. The Dr. Collier is also an unusually heavy grower of fine, healthy foliage and a heavy cropper of fine clusters for either wine or market.

The Jefferson is a fine table grape, being a cross between Concord and Iona, and producing practically the Iona grape on a Concord vine, which makes it a valuable acquisition.

There are always several points to consider in passing judgment on a grape. First, its quality must be good, but it must also be hardy, a thrifty grower and a good cropper; must not rot nor mildew easily; must present a good appearance in bunch and berry and must be able to withstand extremes of wet or dry. The grape that possesses most of these qualities is the one that approaches most nearly the ideal..

Now, a few hints on planting methods. I presume every fellow thinks his own method of planting the best, so will tell you my method, then you can probably get a few pointers, which, coupled with your own ideas, might possibly improve both methods.

I always plow and harrow my vineyard site perfectly just before planting.

I then lay off my plat, by taking measurements on one side and one end, forming a perfect right-angle.

I set a line of tall stakes through the plat where the first row is to be planted, then with a steady team and a man with a good eye to operate, I turn a furrow with a turning plow, each way from the center, then follow up with a lister, running twice through, which forms a furrow deep enough to set the vines down, so that the top of the vines will be even with or below the level of the surface when the furrow is again filled. Do not open more than two or three furrows at one time, so that the dirt may always be moist and fresh while planting.

You should have previously provided a heavy wire, say No. 9, on which a distinct mark is made every eight feet, the wire being long enough to reach the entire length of the row. To prepare the wire, stretch it up reasonably tight on a line of fence posts. Measure it off with an eight foot stick, marking the distance by a slight notch made with a file, then tie a few laps of white cotton string securely at each notch. Fasten the wires securely to a good solid stake driven into the ground in the center of the furrow at one end, another stake at the opposite end, to which is fastened a wire stretcher. Draw the wire up tight enough to take out all kinks. If the wire binds on either side of the furrow straighten the furrow by removing whatever dirt is necessary by means of a shovel. If a steady team is used by a man with a good eye, and the furrow is run by stakes, there need be but little work with the shovel.

Having got your furrows perfectly straight, set a small stake at each mark on the wire and remove wire to next furrow. Care should be taken that the vines line up in all directions, which can be accomplished by keeping one end of the vineyard at a perfect right-angle with the first row planted.

The young vines must be pruned, root and branch, which should be done hastily, yet by system. The top growth should be cut back to two or three good buds on a cane of the previous season's growth. Now I don't mean three different branches, but one straight branch on which are two or three perfect buds. The roots should be drawn through the left hand, clasped tightly, and all cut, with a pruning shear, to about the same length of say six inches. As soon as a sufficient number have been trimmed to plant one row, they should be distributed, one to each stake, where they are taken care of by the men with the spades, by placing the vine directly by the side of the stake and placing a couple of spadefulls of dirt on the roots and packing it firmly with the feet. Then pull up the stake and toss it into the next furrow which is being prepared to be planted.

About four or five spadefuls of dirt is all that is needed to go on the plant for the time, but after a few rows have been set, hitch the plow team to a two-horse corn cultivator, which has had the shovels set so as to throw the dirt into the furrow and by running once or twice over the row the ground will be well leveled off and in good condition to hold the moisture, providing, of course, that the soil next to the roots has been well packed before using the cultivator.

Proceed in like manner, row by row, always exercising great precaution to see that the vines are not unduly exposed to high winds or hot sun.

In most instances the rows are placed eight feet apart, and the vines placed eight feet apart in the row, except in shy growing sorts like the Delaware, which are generally planted six feet apart in the row, and the rows eight feet apart. Don't think the rows are straight enough, when they are not straight. You will appreciate the advantage of perfectly straight rows when you go to put in your trellis, when it is too late to straighten them if they are crooked. After completing your planting, without delay make a record of your plat in some substantial book that is sure to be preserved, so that if God in His wisdom should see fit to relieve you of your earthly burdens, your family may know the name and location of the different varieties.

Now if you have planted strictly first class vines, even though they cost you double what seconds could have been purchased for, and have set them deep and without any undue exposure, you will soon have a fine young vineyard. Providing you don't forget you have set it until the grass and weeds have taken full possession. After each rain or oftener, the ground must be thoroughly cultivated, the vines should be worked around with the hoe several times during the season and allowed to grow as much as they will.

No trellis need be provided the first season, but at least a temporary trellis must be put up before the vines begin to grow the second, of which I will say something in my next.

A row of potatoes or cabbage may be grown between the grape rows the first season, if the entire plantation is given extra good care, but if you are not quite certain that you can give it a touching up with the hoe every few days, you had better not plant anything between the rows.

In my next I will take up the question of pruning and trellis construction, also tying the vines to the trellis with straws and willows.

C. A. McNABB.

Oklahoma.

A HOUSEHOLD NECESSITY

The "1900" Ball-Bearing Family Washer Free

Time, Labor and Expense of Washing Clothes Cut in Two—Most Perfect, Simplest Washer Known — No More Stooping, Rubbing, Wearing Out or Boiling of Clothes.

A FAIR AND SQUARE PROPOSITION

In order to prove to the most skeptical that the

"1900" Ball-Bearing Family Washer

Is unquestionably the greatest Home Labor-saving machine ever invented, we will

SEND YOU ONE ABSOLUTELY FREE

without deposit or advance payment of any kind, FREIGHT PAID, ON 30 DAYS' TRIAL. If you like it, you can pay for it either in cash or on the installment plan at the end of 30 days' trial. If you don't like it, all you have to do is to ship it back to us AT OUR EXPENSE. You run no risk, no expense, no obligations whatever.

The "1900" BALL-BEARING WASHER is unquestionably the greatest labor-saving machine ever invented for family use. ENTIRELY NEW PRINCIPLE. It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on BICYCLE BALL-BEARINGS, making it by far the easiest running washer on the market. No strength required, a child can operate it.

No more stooping, rubbing boiling of clothes. Hot water and soap all that is needed. It will wash LARGE QUANTITIES OF CLOTHES (no matter how soiled) PERFECTLY CLEAN IN SIX MINUTES. Impossible to injure the most delicate fabrics. Saving in wear and tear of clothes, to say nothing of the saving in soap and materials, pays for machine in a short time. Don't be prejudiced. This is entirely different from, and far superior to any other washing machine ever made.

Read These Convincing Testimonials:

A DAY'S WASH IN THREE HOURS.
Sherwood, Md., Jan. 15, 1901.
The washer I received from you is the best I ever saw. It will do all you claim for it. I can do the washing in three to four hours, where it took a colored woman a whole day to do it. We have ten boys and three girls, and you can judge from that, that we have large washings. Myself and daughter would not part with this machine for twice what it cost. We live on a farm. Mrs. Levi H. Harrison.

GREASY OVERALLS WASHED CLEAN.
San Francisco Cal., Dec. 25, 1899.
1900 Washer Co.—Gentlemen: I received the washing machine in good order on the 15th inst. My wife had saved three weeks' washing to try it. She commenced washing at seven o'clock, and at eleven all the clothes were on the line. It would have taken two days to do all this work the old way, and the washing was done clean. Greasy overalls, which I use in the engine room, could not have been done better in a steam laundry. She would not part with the washer if she could not get another like it, if she was offered $100. Yours truly,
Charles Blum, Marine Engineer,
1006 Channing Way, West Berkley, Cal.

15 MACHINEFULS IN 4 HOURS
Chicago, July 13, 1901.
Last week I started to wash with your 1900 Ball-Bearing Watsher. A neighbor saw me wash my little boy's waists (which were terribly dirty) and we were both surprised to see there was not a spot left. On Monday we did a big wash of 15 machinefuls and the work was done in 4 hours. It is the best machine I ever saw (and I have tried many). It works so easy that my little boy can run it.
Mrs. A. H. Center, 639 Diversity Boulevard.

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Savannah Yacht Club,
Savannah, Ga., Jan. 21, 1901.
After a thorough trial of your 1900 Washer on all kinds of washing, I think you have a "wonder." We have a very large washing, and have always had two women on Monday and one to finish on Tuesday. Our washing costs us $10 a month. With your washing machine, our cook and the yard boy did the washing in 4 hours, much better than it was done before. Your washer is all you claim for it.
W. M. Kidwell, Supt.

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Farmer's Vegetable Garden

There is nothing on the farm which pays so well in proportion to its cost as the well kept vegetable garden. The city man can have everything in this line that the farmer can, but he has to pay for it and, too, he can never get vegetables quite as fresh as the farmer, who can go out only a few minutes before dinner and gather a mess of lettuce, corn, peas or whatever is in season. The villager and the suburbanite must content himself with a small space to make the garden upon and this space must necessarily be located in the same place every year.

It is a well known fact that any land that is kept in cultivation for years will become foul with weeds and worse still, full of fungi, that attack the young plants of many vegetables and make it almost impossible to grow them. If the garden is treated as the corn crop is, the weeds and diseases from fungous growths can be largely avoided.

The proper thing for the farmer to do instead of keeping the garden in the same location every year, is to change it about from place to place, year after year, as he does his corn crop. In preparing for a crop of corn a piece of old pasture is usually selected. This is coated for one or two years with fresh manure from the stables in the fall or early winter. In the spring, this is turned over as soon as the soil is fit to work and about June 1, in the Northern states, is planted to corn. By this time the land is warming up and the weather being fine, the corn starts to grow and grows right along throughout the season, not getting the cold weather of early spring to check it.

The farmer should treat his garden as he does his corn crop. A piece alongside the cornfield should be selected. This should be plowed just before it is garden-making time. It should be thoroughly fined with the harrow. If it has been manured the two previous falls, the soil will be full of vegetable humus especially rich in nitrogen, which is very necessary for most garden crops. In putting in the garden crops never use any barn manure at the time of planting. This will cause unhealthy growths, blights and fungous diseases. Use a rich commercial fertilizer composed of nitrogen, phosphoric acid and potash in about the proportion of 1-2-2. The nitrogen helps cabbages to head up and makes a large leaf growth on all vegetables. The phosphoric acid helps develop the seeds of corn and peas and the like, and potash gives the plants strength to bear up the crops and imparts color to the vegetables, as well as quality. Apply the commercial fertilizers close to the plants on top of the soil. In using it where plants are sowed thick, scatter on top and rake into the soil with garden rake. About five quarts of commercial fertilizer to the square rod is about right for garden crops planted on soil treated as we have mentioned.

When the time comes for making the garden, all hands should take a hand. On the farm, the right time never comes; that is, the time never comes that we feel that we can spare. The time must be taken, regardless of anything else. The plot should be long and narrow and marked into rows so as much of the work man be done with the horse as possible. Plant peas, beans, corn, tomatoes and most everything in rows. Plant the lettuce, carrots, beets, salsify, parsnips in double rows, leaving space between to cultivate.

When planted on soil like this that has been in pasture and just plowed, the first weeds will not come up till after the vegetables are in sight and they can be weeded out before the first weeds appear. The soil is much more lively, is not packed down as in old garden spots and everything starts to grow with a vim. The only disadvantage to planting the garden on rich sod is that in very early spring should the season be dry the young plants will suffer from drouth, but this is largely obviated by rolling the land thoroughly before planting and if necessary the young plants may be watered, they requiring very little water when small. When they get well rooted, they will stand dry weather as well on sod as upon any land if good culture is given. The only weeds that trouble sod gardens as much as on old land is the thistle, but these can be kept cut back with knives. It pays to change the location of the garden often, always selecting the best location and soil, as near the buildings as possible to save steps and be where you can watch it.

L. J. FARMER.

A number of very interesting articles have been crowded out this month, and will appear in March issue, and in later numbers. Our columns are much crowded now, but we will try to see that no articles are left until they are unseasonable.

A Valuable Catalogue

The Western Fruit-Grower has just printed the catalogue of the Titus Nursery, Nemaha, Neb., which is one of the neatest catalogues of the season, we believe. The mechanical work is excellent, even if we say it ourselves, and the matter is well gotten up and well arranged. This is one of the enterprising Western nursery firms which are doing so much to develop the horticultural industry in this section. The gentlemen composing the firm are reliable and they make every effort to grow the best stock possible.

In a conversation with Mr. Titus some time ago he told the Western Fruit-Grower of the work the firm is doing in the way of selecting scions from first class bearing trees. The observation of these gentlemen in the orchard has convinced them that there is an individuality in trees, and that only the best types of each variety should be propagated. Of course, by best types is meant those trees which bear the heaviest crops, whose fruit is the best-colored and healthiest in every way. Believing this to be true, careful watch has been kept for the best trees, and from these nursery trees are propagated. This is much more work, of course, than the cutting of scions from nursery rows, but Mr. Titus says his firm believes that better trees will be secured, and therefore better pleased customers.

Among other varieties handled by this firm is the Virginia Beauty apple, which is so well received by those who have seen it. This apple is popular in parts of Virginia, and has been recommended by the Nebraska Horticultural Society. It is of very high quality and holds its fruit and keeps better than Jonathan. We hope our readers will send for catalogue of the Titus Nursery, for it is well worth having, and your orders will receive careful attention. This firm is having a splendid trade, and orders should be sent in early. Address Titus Nursery, Nemaha, Neb.

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Asked and Answered

In answer to Mr. B. Buckman's question as to the habitat of the American pawpaw will say that I have found them as far north as the south boundary of the Great Lakes, as far west as the semi-arid region of the West, but not west of Central Kansas, but they grow to the Gulf on the south. The persimmon does not cover as much territory, but the northern limit is Cincinnati, Indianapolis, St. Louis, and as far west and south as the pawpaw. Neither can be found west of Central Kansas or Nebraska, to my knowledge. I have never seen wild persimmons to exceed one inch in diameter.—W. A. Irvin, Springfield, Mo.

J. C. S., St. Louis, Mo.—I would like to have advice as to the advisability of turning well ringed hogs in an orchard. My case is this: I have an orchard of seventy acres, now six years old. The trees have been thoroughly cultivated from the start and have made a very rapid and even growth, but have as yet borne no fruit to speak of, although large enough to bear considerable fruit. They now seem to be full of buds, however. It occurred to me that inasmuch as they had made such a rapid growth and the soil being in good condition I would spray and care for the orchard and not cultivate this season, but instead turn in sufficient well ringed hogs to consume the droppings and otherwise act as scavengers; but not having had experience with hogs in an orchard I will be pleased to hear from some one on this subject who has had more experience than I have.

Answer by L. A. Goodman: I do not know anything better in the orchard than hogs if kept "ringed." The only danger is in having too many, so that they will rub the trees too much and thus injure them. I should sow the land to rape early in the spring, and as soon as it is large enough to pasture turn the hogs in. I would not cultivate unless the trees should have a heavy crop of apples on them and then only cultivate a strip four feet wide on each side of the trees.

C. A. W., Macon, Mo.—Please give me the outline of what is called the renewal system of pruning grapevines.

Answer by Major Holinger: The renewal of the grape as I practice it is in allowing new canes from as near the ground as possible. Usually I leave two or three canes, and in pruning I trim these canes as high as the top wire, spreading fan shaped. I then saw off the old sticks as close the ground as I can without injury to the new canes.. A vineyard looks so much better if treated in this way and is so much more easily pruned. In trimming I first select the canes to remain, trimming them, laying so as not to be injured, and then clean off the balance. I am certain the work can be simplified one-half by following this method of pruning. By having straight canes there is less danger of leaving too much bearing wood, as is often the case when training by the old system.

E. H. C., Summit, Va.—I own a small farm of sixty acres. I wish to set some of this to pears, plums, etc. The soil is thin, clay subsoil. Do you consider pears a profitable fruit? If so, would you plant Kieffer and Garber? I understand these varieties are not considered the best, but are less liable to blight, hence are planted more than some other kinds. The Bartlett, I notice, is quoted selling for $4.00 per barrel in Pittsburg, when the Kieffer was worth only $2.00, but am told that this blights badly (the Bartlett). I have a few three year old Japanese plums; last year some of the trees were full and nearly every one of the plum dropped. How can I prevent this and what is the trouble.

Answer by Major Holsinger—The pear question is one that is hard to determine at this distance. My acquaintance with Virginia was mostly gained while in the army early in the '60s. I remember that there was a great diversity of soil, some very fertile and a great deal of wornout, sandy land, that would produce only hard pine, these lands having been impoverished by tobacco growing. While the pear does not require a very rich soil I would not think it or any other fruit was suited to the latter class of lands. If, however, yours should be of the more fertile limestone lands, such as are found in the great Shenandoah Valley, I think you would not make a mistake in planting the pear for the reason that around Hagerstown, Md., and up to Winchester, Va., I saw the finest pears I ever saw grow. By the way, your name recalls to memory a stream upon which I once picketed, a very small, insignificant affair in the evening, but a mighty torrent in the morning. I was on picket and had stood the first relief and had gone outside the lines to see what I could devour, when a cloudburst took place and we were unable to return. Finding a house we demanded to remain over night. The next morning the "Catlett" was a torrent 400 feet wide. Impressing an old uncle (colored) with an axe, who cut a tall tree for us to "coon" the deepest and most turbulent part, with our clothes tied in a bundle and on our heads, we forded the stream, finding our command on the high ground to the rear of where they had encamped the evening before, thankful we had not been "gobbled" by the Johnnies and that we escaped the guard house.. I would plant largely of Kieffer and Garber. While they may not sell for as much as Barlett, yet you can produce more than sufficient to make up the difference. The Bartlett is so inclined to blight that it is hardly worth planting. Japan plums are very uncertain and I would touch lightly. Their dropping, I think, is largely the result of moisture. Last summer, owing to drouth, the Japs ripened their fruit with us; but little had set, trees living suffered from the winter of 1899 and had not recovered. Would recommend the American plums as more satisfactory than Japs or European varieties.

L. F. F., Shiloh, Ill.—When spraying trees with Paris green or Bordeaux mixture is there not a great danger of destroying many useful insects and insectivorous birds? I have a small orchard and would have sprayed long ago if I was sure that I would not kill bees, useful insects in general, and birds of all kinds.

When the spraying is done as directly there is absolutely no danger in the above.

Growing Shallots—I have been growing shallots for over seventy years, and my advice to R. B. H. (page 18, January number), would be to plant a small quantity to try them. Shallots are of the onion, or perhaps it would be better to say garlic, family, and are rather mild in flavor. They can be planted in spring or fall, and, as far as I know, are perennial. Possibly mulching in winter would be of benefit to them. They can be propagated by division of roots almost indefinitely. I would again advise R. B. H. to go slow on shallots. I send clipping from Globe-Democrat which quotes prices of shallots.—Wm. Jackson, Godfrey, Ill. (The clipping sent quotes New Orleans shallots at 30 to 35 cents per dozen bunches for choice, on St. Louis market.—Ed.)

To Protect Trees From Rabbits—I would advise C. E. Brown and all others who wish to protect trees from rabbits to get two small beagle hounds and a good shotgun. I have been in the fruit business upward of forty years, and have found the above plan most effective. A good load of buckshot injected forcibly into a rabbit prevents him from either gnawing or breeding. N. B.—I have neither guns nor dogs for sale.—Wm. Jackson, Godfrey, Ill.

T. W. S., Americus, Kan.—Is there anything new learned about the handling of the apple and cedar rust? I am cutting my cedars, but am doing so reluctantly, for they are a wonderful windbreak, as well as ornament, to my orchard and place.

Answer by Prof. Greene, Kansas Experiment Station: The question as to whether it is best to cut down the cedar trees or to wait until we have some other method of destroying the "cedar fungus," is one of some importance to the man who has spent a great deal of time and money in growing an orchard and a windbreak of cedars. The Kansas Experiment Station has tried picking the cedar apples, but has found that it does not pay, as it makes little difference with the attacks on the apple. In the spring of 1900 all the cedars on the grounds were sprayed with a copper sulphate solution, which seemed to check the attacks on the cedars sprayed. In 1901 the experiment was again tried, but the drought of the summer had the effect of drying up the cedar balls on the trees. No conclusions could be drawn from the spraying. During the coming spring the experiment will again be tried and we hope for some valuable results. If we can check the growth of the fungus on the cedars it will be a question of how many will take the trouble to spray. Copper sulphate was used in the proportion of one pound to twenty-five gallons of water. The spraying was done before the apple trees were in leaf; the work being done at the same time as we sprayed the fruit trees for other fungus diseases. Mr. Stanley might try spraying and give the cedars one more chance.—George O. Greene, Kansas.

L. J., Butler, Okla.—How would it do to spray trees with potash, as well as to fertilize with the same? How would it do to wash trees with a strong solution of potash after borers had entered the tree? Would it injure the tree or the borers.

Answer by Kansas Experiment Station: The forms of potash used as insecticides are not considered very good fertilizers. A strong solution of potash would probably very badly injure the trees and would not reach the borers. The use of soft soap on the trees in no wise injures the borers already in the tree. It is used as a repellant to the moth that lays the eggs near the base of the tree. To kill borers with caustic potash you would have to apply it directly to the insect. Used as a spray, it would do no good, as they are in the body of the trunk or limbs. Soap would make as effective a wash for the body of the trees as caustic potash and would be much cheaper.

O. E. C., Columbus, Neb.—Is it advisable to plant Red June and other Japan plums here, where Elberta peaches somtimes kill? How do they compare with the peach in hardiness?

The planting of Japan plums in your section could not be recommended as a commercial proposition; for home planting they may bear fruit, but are very apt to be killed whenever peaches are, as they are about as hardy. But even if they do not kill the culture of plums commercially is not recommended by such men as Theo. Williams of Benson, Neb., and others who have tried it. We would prefer the American varieties.

G. H. H., Jr., Tupelo, Miss., sends some knotty excrescences cut from apple trees, asking what caused them. Prof. Stedman says they might have been caused by a number of different things, but there is no harm done.

G. A. D., Browning, Ill.—Is fruit growing, especially apples, a success in the prairie land of Southwest Missouri—say Barton and Jasper Counties? Or should one locate in the country east of Springfield in the Ozarks?

Answer by L. A. Goodman: Too many of the prairie lands of Barton County are underlaid with hard pan, which are not good orchard lands. But you can find good orchard lands in both the counties if you will be careful to see that you have a gravelly or porous or red clay shale subsoil. You can easily find plenty of these lands there and on the Ozarks, just south of there, in Jasper County.

F. N. N., Missouri City, Mo.—Will you please give me a little information in regard to cow peas. I have some land that washes by cultivation. Will it do to break up the ground five feet each side of trees, then plant to cow peas, and turn them under this coming fall. Will they come up again in spring if I wait until they are ripe when turned under in fall? Land is very thin; it has had no rest from corn except one year (last). Between rows have sowed it to clover and was aiming to cultivate five feet each side of trees, until I received a copy of your paper in December. Note where some grow peas for the manure they produce.

Answer by L. A. Goodman: We follow the plan of cultivating a strip of each side of the tree five feet wide. We sow clover on the strip and keep in clover for two years only. We sow in part of the orchard this strip to cow peas and keep the strip well (about five times) cultivated with double shovels. We like the cow peas best, but like the clover well, also. If I had a good stand of clover I should keep it this year and plow up the next year.

George Hayden, Jacksonville, Ill., writes that he used bands of coal tar around his elm trees to protect them against the attacks of canker worms, which Dr. Forbes said defoliatd so many of the large elms at Jacksonville. He wants to know if this application will injure fruit trees. The remedy was very effective. There are many growers who fear to use coal tar in this way, but the tar can be applied to building paper and this band applied to the tree, taking care that the band is so tight that insects cannot get under it. The preparation made by Bowker Chemical Co., Boston, Mass., "Bodlime," will not injure the trees, and is said by those who have used it to be very effective.

We have a letter from M. Butterfield, Farmington, Mo., calling attention to a report which was made at Princeton, Mo., in 1899, as to the identity of Gano and Black Ben Davis. At that time Prof. Stinson said "Black Ben Davis. Etris and Gano are practically the same." The committee on fruits at same meeting said they were unable to distinguish any difference between the varieties. Mr. Butterfield believes this is as near an official report as could be submitted by the Kansas society. As we said in January number, there are differences of opinion as to the varieties, but a number of other queries in regard to the matter had been referred to Major Holsinger, and this one was also sent him. After having just carefully examined them, Major Holsinger said they were not the same, and his findings were published just as we had already published his contrary opinion beforehand.

B. B., Farmingdale, Ill.—While I am a believer in the use of the spray pump for relief against many of our insect and fungus foes, yet on many points doctors have differed, and still do differ, much to the confusion of mind of the ordinary orchardist, and I find myself even now, after the above subject has been agitated for nearly twenty years, with

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Asparagus, Beet, Cabbage, Carrot, Celery, Cucumber, Egg Plant, Lettuce, Musk Melon Water Melon, Onion, Parsley, Parsnip, Pepper, Pumpkin, Radish, Spinach, Squash, Tomato.

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apparently less light on the subject than at the beginning. In December, 1883, Prof. Budd of Iowa, attended a meeting of the Illinois State Horticultural Society, held at Bloomington. Here I heard for the first time advocated the use of arsenic in a spray. The professor said, in short, that a Mr. Dixon of Iowa had for a year or two "sprinkled his apple trees with arsenic water" just after the blossom opened, with 1 pound of dissolved arsenic to 200 gallons of water. This seemed a wholesale panacea against the insect troubles, for the professor says that Dr. Dixon had no codling moths, canker worms, caterpillars, tortrix or leaf skeletonizers in his orchard, which was large enough to yield as high as forty thousand bushels in a season. One or two sprayings were thought usually sufficient. This was the beginning of the spraying craze in Illinois, but it spread until we were assured by prominent entomologists that even the plum curculio could be destroyed by the same spray. For many years many entomologists have taught us that a single thorough spray soon after the petals have fallen was sufficient, and this has been especially urged by those who were trying to save the honey bee from poison. This brings us down to a paper in your last issue in which it is said that unless you propose to make four sprayings you must not expect to see good results. One or two sprayings is a waste of time. Now, in the current number of the Rural New Yorker, February 1st, in the first column of page 68, Prof. Slingerland is made to say that if we "do thorough work against the first brood of the codling moth there will be no second brood." Where there is the second brood, "but little effect in reducing the codling such can be expected from such late spraying in the East."

I cannot see that there should be any conditions of latitude, longitude or any thing else that should so change the nature of the codling moth that in the one case one, or even two sprayings is "a waste of time; and in the other fully sufficient. Would like to have mystery explained.

In regard to the foregoing, Prof. Stedman says: "So far as the article of Mr. Buckman is concerned, I see no discrepancy at all. Mr. Slingerland says 'thorough work' and I say that thorough work means at least four sprayings. Mr. Slingerland and any other reputable entomologist never contends that one or two sprayings will kill thoroughly the first brood of codling moths. If one will read the articles carefully there will be no trouble.

A. H. M., Hereford, Texas.—(1) I have some peach trees, planted last spring, two years old when planted, which are headed too high, and have badly formed tops. I would like to know if they will stand cutting back to a straight stick in order to get lower and better tops. (2) I also have some pear and Red June plums, same age, and set same time as the peaches, which made little or no growth last year. I have been told they were "bark bound" and advised to either slit the bark the length of the trunk or cut off the entire top. They are also headed too high and would like to cut them back if it will do no harm. (3) How can I tell a fruit bud from any other bud? (4) Are transplanted evergreens, as catalogued by nursery men, better in any way than those not transplanted? (5) Seedling peaches are said to be hardier than budded. Does that apply to seedling trees bought from a nursery and transplanted or to trees raised from seed planted where they are to grow? (6) Would you advise planting an orchard of seedlings, where hardiness is the consideration, in preference to budded trees of a hardy variety?

Answer by J. H. Hale: (1) Peach trees that are headed too high can easily be licked into shape by cutting or sawing off the tops, painting over with white lead where heavy cuts are made and letting new shoots start out lower down. Then by properly thinning out these almost any shaped head can be formed that is desired. If there is any fear that sprouts will not start freely cut away everything but one of the old leading branches and leave this to pump sap until sprouts could start down below, and then cut this away; but I have always had perfect success in cutting away the entire top at one time, which should be done when the trees are in dormant condition before the buds start in the spring.

(2) As to trees being bark bound, liberal fertilizing and frequent stirring of the soil will start them growing on the jump and there will be no further trouble in that direction.

(4) Transplanted trees in the nursery are better than those that have been grown for two or three years without transplanting, because we get a more solid and compact root system.

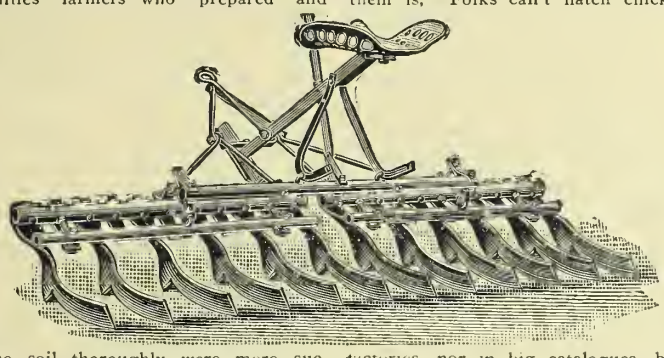
(5) The average seedling peach trees are no hardier than budded trees. The hardy seedlings that we have scattered about in various sections of our country are simply the survival of the fittest and thousands have failed where these few survived. If any one wants a good peach orchard he had best plant budded trees of best hardy varieties.

(6) Planting the seeds where the trees are to grow is a difficult and always uncertain process and certainly not worth the trouble. In planting fruit trees of any kind in any section of the country just select good, vigorous, healthy trees of standard, hardy varieties that are known to do well in the latitude where they are to be planted and then by following best methods of cultivation, feeding and pruning you are sure to get the best orchard in the quickest possible time.

E. C. A., Lone Jack, Mo.—(1) In the July number of The Western Fruit Grower I notice ten lists of peaches adapted to Missouri, submitted by as many different members of the Missouri Horticultural Society. Of these ten lists, Elberta is mentioned by eight persons; Champion by seven; Salway by seven, showing these to be the three big peaches; but, what surprised me is that Fitzgerald was not mentioned by any one. Yet this peach has a great name in nursery catalogues, in the Michigan and New York Horticultural Societies, the Michigan Experiment Station and the Canadian Experiment Farm for these desirable qualities. First, Extreme hardiness; second, good size; third, good color; fourth, good quality, fifth, abundant bearing; sixth, early earing. What is the matter with Fitzgerald? (2) What is the most reliable of the very late peaches, considering size, hardiness, quality and productiveness? When does it ripen? (3) I would like a list of five of the best varieties of winter apples adapted to a limestone ridge with red clay subsoil, taking the following qualities into consideration: First, reliable cropping, size, color, quality, keeping; taking as far as possible the future of the apple market. There seems to be quite a determined fight on old Ben Davis. Is the Ingram better in color and quality and size than the Rawles Jenet? (4) In conversation with an intelligent orchardist some time ago he expressed the belief that spraying, well done, helped to set the fruit buds and increased the fruit product; that spraying should consist in merely thoroughly dampened buds, twigs and leaves; but not enough to run or drip. He recommends the finest spray, and says drenching causes too much of the sedimentary poison, such as paris green, to wash off the twigs and buds and settle too heavily on lower edges of leaves, or drip off. (5) What is the largest hardy, good quality black-cap raspberry?

Answer by L. A. Goodman: (1) The Fitzgerald has not yet established a reputation good enough here in Missouri to entitle it to be one of ten varieties. It may prove itself to be one in a year or two, but until then experiment with it. (2) The Salway is the best late peach for Central Missouri. (3) The best five varieties for market in Central Missouri are Grimes, Jonathan, Ben Davis and Gano, York, Ingram. M. B. Twig might go in as number 6. Ben Davis and Gano count only one. Plant them both. (4) Spraying helps to keep a tree healthy. Healthy trees will hold their fruit better, grow it larger, and ripen it better. (5) American sweet chestnuts will grow well and bear well if well cared for, for the first five years. I have thirty trees, which have borne for twenty years and never failed. (6) The Kansas is probably the surest black cap to plant. (Ingram is redder than Rawles Janet; quality no better.—Ed.)

If any doubt existed anywhere about the advantage of thorough preparation of the soil before planting by pulverizing or otherwise fining it, such doubt has been expelled by the experience of last summer in those sections where drought was most prevalent. In such localities farmers who prepared and



worked the soil thoroughly were more successful in getting good crops than others.

Last summer's experience also demonstrated anew the superior qualities of the Acme Pulverizing Harrow, manufactured and sold by Duane H. Nash, of Millington, N. J. Very remarkable results follow its use. This implement has been made and widely advertised by Mr. Nash for a number of years. It does just what its name indicates; it not only crushes all clods and levels up the surface perfectly, but it turns and aerates the soil, thus putting it in ideal condition for the crop, whatever it may be. In fact, we do not know a tool a farmer can have which brings such large returns for its cost and the labor expended in its use than the Acme Harrow. Soil prepared with the Acme retains its moisture longer than if worked with the ordinary appliances; in fact, it leaves the surface like a fine mulch, than which there is nothing better for retaining moisture. It is most durably made and is guaranteed by the manufacturer, and, as large stocks are carried at various distributing points, prompt shipment can be relied upon. If your dealer does not have a sample Acme in stock write direct to the manufacturer at the above address and he will see that you are supplied. Mention Western Fruit-Grower in writing.

NOTICE.

We are very glad to mention the catalogue of Allen L. Wood, of Rochester, N. Y., one of our advertisers and a large grower of fruit and nursery stock. There appears on the front cover a photographic illustration of a fine dish of raspberries. On one of the inner pages is a similar illustration of strawberries in a bowl. This method of attracting attention to special varieties is effective. The catalogue appears to contain everything any one would want in great variety, and we should judge the prices reasonable for the high grade of stock which Mr. Wood is famous for shipping. One of the novelties shown in the catalogue is the McKinley early grape, brought out by Mr. Wood last year, and which gives great promise. Our readers who are interested in these matters would do well to write Mr. Wood for one of his catalogues, which will be very promptly mailed free on request.

SPRAMOTOR.

The value of a name is well illustrated by the above, which was adopted by the inventor of the spraying machines now advertised and sold by the Spramotor Company. Probably no similar machines on the market embrace more points of advantage than the Spramotor. Space will not permit detailed reference to these, but a line to the manufacturer will bring catalogues and other descriptive matter. The business started at London, Canada, has grown to such proportions that a year ago a complete establishment was opened at Buffalo, N. Y., from which point all orders from the United States are filled. Highest honors were awarded the Spramotor at the Pan-American Exposition. Spraying has come into such general use by fruit and vegetable growers, farmers and stockmen, that many of our readers will be buying sprayers this season. The Spramotor Company makes a full line. Address them at Buffalo, N. Y., or London, Canada, and mention this paper.

We have received from the Deming Co., of Salem, O., one of their new catalogues of pumps and spraying machinery, which ought to be in the hands of every farmer, fruit grower and market gardener. The Deming people are among the oldest manufacturers of these goods in the market, and their line is most complete, embracing all approved patterns of bucket, knapsack and barrel sprayers; also field and power sprayers. The adaptation of these devices in recent years to painting and whitewashing has materially enlarged their scope and usefulness. The book contains a very convenient spraying calendar; also directions for preparing and using various mixtures, all of which add to its practical value. The Deming people publish a special edition of "Spraying for Profit," which they sell at only ten cents, and give a copy free with every pump they sell. Those who are out in the market for spraying machinery for the coming season will do well to correspond with the Deming Company, whose factory and main office is at Deming, Ohio. In corresponding kindly mention this paper.

A GOOD CATALOGUE.

The plan and general arrangement of the Field Force Pump Co.'s catalogue is most excellent. These people make an original and complete line of spray pumps and machinery. Each pattern is presented in order by a large and well engraved illustration, accompanied by the required descriptive text, which is singularly clear and forceful. It would be hard to think of any machine or appliance for spraying which cannot be found in this catalogue. For painting or whitewashing buildings, fences, barns, etc., this line is unsurpassed. The chapter in catalogue, "When to Spray and Why," is of exceptional value.

Write today to Field Force Pump Co., Lockport, N. Y., and mention this paper.

THE REAL THING.

The above is made from a photograph of a home scene where they are taking off a hatch from a Sure-Hatch Incubator. It is only one of hundreds of views of people using this machine, contained in the 1902 catalogue of The Sure-Hatch Incubator Co.

Mr. M. M. Johnson, the hustling business manager of the concern, goes in for this sort of real thing more than he does for braggadocio statements of the size of his factory, art catalogue, etc. He says it offers actual proof that the Sure-Hatch Incubator can be run successfully under the most natural circumstances and conditions. Mr. Johnson has become well known among the poultry fraternity for his terse, apt sayings, and one of them is, "Folks can't hatch chickens in big factories, nor in big catalogues, but in good incubators." This strain of good, hard, common sense runs through the entire catalogue of this company. There are no ambiguous statements either in the catalogue or in the instructions for running the machine, none of that strained effort to make use of heavy adjectives or complex sentences. After reading the book one feels that he has had a good heart to heart talk with a man who knows the incubator and brooder business from A to Z.

From two small rooms in this house, where Mr. Johnson first manufactured his incubators, in 1894, the Sure-Hatch Incubator Company has grown until their factory at Clay

Center is probably the largest of its kind in the world, devoted entirely to the manufacturing of incubators and brooders. While the owners do not care whether it is or not, yet this company was 500 to 800 machines behind its orders nearly all last season. During the summer they have made large additions to their factory and machinery, and are now equipped to fill orders promptly. Being a Western concern, at first they naturally sold the machines mostly in the west, but the merits of their incubators soon became known all over the country. They have developed such a large eastern trade that they opened up a branch house at Columbus, Ohio.

You can get one of their catalogues by addressing them at Clay Center, Neb., or Columbus, Ohio, and if you are interested in poultry you will do well to send for one of them. They mail them free.

This company does not believe in sending out form letters, but writes personally to every one who writes them, whether it is about their incubators or brooders or the poultry qustion in general. Any one writing them can feel assured that he will get a real letter in return.

Please mention this paper when you write them.

The fifteenth annual catalogue issued by L. L. Olds has just been received. Mr. Olds is still recognized as one of the leading seed potato growers of the country and naturally these occupy first place in the book. The illustrations are very fine. His business has grown into a full line of seeds and the present catalogue shows corn, oats, and all forage plants in great variety; also roots, melons, in short, all standard field and garden seeds, while there is a good assortment of flower seeds for the ladies. The catalogue will be sent free to any of our readers who will mention this paper when writing. Address L. L. Olds, Clinton, Wis.

Our Horticultural Visitor, published at Kinmundy, Ill., is in charge of E. G. Mendenhall, a well known horticulturist, who for twelve years has been secretary of the Southern Horticultural Society. Mr. Mendenhall, besides dealing in horticultural supplies, is agent for the Cutaway Harrow Company, and has placed many of these implements on Western farms.

WANTED!
2,000 Northern Red Cedar
15 to 18 transp. Quote price to the Trade.
The Perry Nurseries, Perry, Ia.

Largest nurseries in the state. Landscape Gardners. Public and private grounds laid out and planted. We have a large and nice stock of shade and ornamental trees, also fruit trees, vines and ornamental hardy flowering shrubs, flowering plants, roses and bulbs, large stock of evergreens. Write for price list. Address
Holland & Co. Pretty Lake Nurseries, Plymouth, Marshall Co., Indiana. State Entomologist's certificate sent with all shipments.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex.	$1.00	$1.25
Practical Farmer, Philadelphia	1.00	1.00
Ohio Farmer, Cleveland, O.	.60	1.00
Rural New Yorker, N. Y. City	1.00	1.25
Iowa Homestead, Des Moines	1.00	1.20
Live Stock Indicator, K. C.	1.00	1.20
Wisconsin Farmer, Madison	.75	1.00
Poultry Farmer, Des Moines	.50	.70

Give name and address plainly in each case.
WESTERN FRUIT-GROWER,
St. Joseph, Mo.

OH! YES!
They are coming: Letters and Orders by the hundreds; every post. Having seen my ad in January number of Western Fruit-Grower, they all want Wholesale Prices and the beautiful electro plate of Baldwin Cherry. They all know that ours is the Banner Corn County in Kansas, and our trees are the best.
BALDWIN, Nurseryman, Seneca, Kan.

NO MORE
CABBAGE WORMS
and no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both; and it is cheap. Both receipts sent for $1. B. P. eggs, $1.00 a setting. JOHN KLENKE, 412 West Homestead, Pa.

ELBERTA PEACH
10,000 Surplus 2 to 3 feet and 3 to 5 feet
Sunny Slope Nursery Grows Good Trees
Write them if you want bargains—A Full Line
WILL S. HALL, Prop., Hannibal, Mo.

Austin's Dewberry
25 plants for 60c; 50 for $1.00; 100 for $1.93. Prepaid by mail. Ripens very early, one week earlier than Lucretia; it is very large, wonderfully productive, glossy black, splendid flavor, bears well one year after set out.
Circular and new cultural directions sent free.
J. W. AUSTIN, PILOT POINT, TEXAS

WEST MICHIGAN TREES
are healthy and hardy. Buds cut from bearing trees insure stock true to name. 213 acres—two million trees—apple, peach, cherry, plum, pear and quince. Ornamental trees and shrubs. Order direct at wholesale prices. Beautifully illustrated catalogue sent free. Write to-day.
WEST MICHIGAN NURSERIES
Box 23, Benton Harbor, Mich.

WE WANT MEN TO LEARN THE BARBER TRADE.
Only 8 weeks required; years of apprenticeship saved by our method of constant practice, expert instruction, etc. We have placed graduates in leading positions everywhere. Comparatively no expense. Catalogue mailed free by addressing nearest branch of the
MOLER SYSTEM BARBER COLLEGES
New York City. | Chicago, Ill. | San Francisco, Cal.
St. Louis, Mo. | Buffalo, N. Y. | Minneapolis, Minn.
Omaha, Neb.
Classes for Ladies in Hairdressing, Manicuring, Facial Massage and Chiropody also.

RUPTURE Cured while you work. You pay $4 when cured. No cure no pay. Alex. Speirs, Box. 955, Westbrook, Maine.

TREES RELIABLE, HEALTHY, FRESH DUG. We grow them by the millions. Catalog free to everybody. SHEERIN'S WHOLESALE NURSERIES, DANSVILLE, N. Y.

850,000 GRAPE VINES
100 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. LEWIS ROESCH, Fredonia, N. Y.

TREES and PLANTS THAT GROW
and bear fine fruit. We grow that kind. Large stock. Honest dealing. Low prices. We pay freight. Budded Peaches 6c; Grafted Apples 5c; Concord Grapes 2c. English or German catalogues free.
CARL SONDEREGGER, Prop. Box U, Beatrice, Neb.

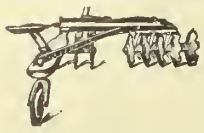
$7.00 DAILY AVERAGE
selling easy Pump Governors. They make the hardest working pump work easy. Windmills turn in the lightest wind. Fits all pumps. Exclusive territory. No talk—merit sells it. Pump Governor Co. 23 U S. Canal St. Chicago, Ill.

LARGE HAY CROPS

Tools Used by GEORGE M. CLARK

CLARK'S DOUBLE-ACTION Cutaway Harrow will easily move 15,000 tons of earth one foot in a day.

CLARK'S SINGLE-ACTION Cutaway Harrow, made in 54 sizes, from 3 to 16 feet wide.



CLARK'S CALIFORNIA SR. ORCHARD PLOW and HARROW plows a furrow 3 feet wide, 6 feet to the right of the pole. Send for circulars and price.

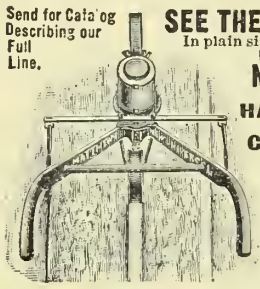
This cut shows the CLARK'S EXTENSION A-6 Cutaway Harrow, made in 12 sizes.

CLARK'S 24-in. TORRENT SULKY Plow, made in 12 sizes, from 2 to 8 feet wide.

CLARK'S 8-ft. Leveling and Smoothing Harrow; with it the surface can be made as true as a mill-pond.

Cutaway Harrow Company
HIGGANUM, CONN., U. S. A.
Send for Circulars.

Send for Catalog Describing our Full Line.



SEE THE SEED DROP.
In plain sight of the operator.
MATTHEWS'
New Universal
(Improved for 1902)
HAND SEEDERS AND CULTIVATORS.
Used by the most successful gardeners. They do perfect work. Open furrow, drop seed, cover any desired depth. Cultivating attachments. Latest and best. Popular prices.
AMES PLOW CO.,
59 Market St. BOSTON.

SEWS ANYTHING from silk to coarsest fabrics. The celebrated
BALL-BEARING ARLINGTON $14.75
(equal of any $40 to $65 Machine.)
Combines highest grade mechanical efficiency with beautiful appearance. Finest and most complete attachments. BALL BEARING, hence easy running, noiseless. Guaranteed for 20 years. 250,000 sold. Testimonials from every State.
Write for Free Catalog showing all styles and samples of work. Arlington guaranteed machines from $11.95 up.
Our Automatic Cabinet at $17.75 is a wonder.
CASH BUYERS' UNION, Dept. A-12, CHICAGO, ILL.
Shipped on 3 Months' Trial.
REFERENCE FIRST NATIONAL BANK, CHICAGO.

CONSTANT FLOW OF WATER
to the house, the barn, the garden or lawn is assured by the

RIFE HYDRAULIC ENGINE.
Pumps water automatically. Better than any ram, engine or windmill. Sold on 30 days trial. Fully guaranteed. Catalogue Free.
RIFE ENGINE CO., 126 Liberty St., New York.

This

HANDY SHELLER 98c
will shell all kinds of corn, big or little ears, perfectly clean. Puts the corn in a box, etc., and the cobs outside. Has special attachment for shelling popcorn. Is strong, durable, fast and handy. Ideal for shelling corn for seed, poultry and other purposes. It's so low in price nobody can be without it. Pays for itself quickly. Send for illustrated Buyer's Guide; contains everything ... Money Saving Prices.
... Order House, Quincy, Ill.

TREES!

We offer a large stock of

Apple, Pear, Cherry, Plum, Apricot
Grape Vines, Gooseberries, Currants
Blackberries, Raspberries

and a general assortment of forest tree seedlings, apple, pear and cherry stocks, ornamental trees and shrubs. Correspondence solicited.

F. H. STANNARD & CO.
OTTAWA, KANSAS.

MUNSON'S
Newest Creations
THE HEADLIGHT.

The grape so much desired is at last produced. A vigorous, healthy, prolific, handsome, extra early, of best quality. An extra fine shipper that will sell at the highest price in any market. Cluster and berry above medium, clear bright red, the earliest of all grapes, and equal in quality with the Delaware. It endured 27 degrees below zero in Kentucky and produced a fine crop. Bound to lead all others as the earliest market grape. Price $1.50 each; six for $8; 12 for $15.
Descriptions of all new creations, general catalogue, and colored plates of Wapanuka free to applicants.

T.V. Munson & Son, Denison, Tex.

More About Winter Plowing

I read with much pleasure Mr. Hale's notes and criticisms. I wish, however, to correct one, to me, false deduction from my report of winter plowing or fall plowing in the orchard. I feel very sure that there is no time in the whole year when one plowing does as much good as does this one fall or winter plowing. I would prefer to omit any one of the other cultivations during the summer than this one.

Because the trees are asleep is just the reason why we should cultivate. I never move a tree except when dormant. November, December, January, February, March or April are the months to transplant, and the earlier the better, usually. Just so with the cultivation. I should say plow in the fall or winter, turn under the weeds and trash, leave the ground as rough as possible and let the winter freezes loosen or pulverize the soil. You will find a great difference in the condition of that soil all next summer and the trees profit more by it than any other one thing you do for them.

The next best thing (or as some think, the better plan) is to sow some cover crop such as rye, for winter protection and then plow it under in April or May. At any rate, be sure to plow the trees in winter while they are asleep and you need not fear of waking them up. Friend Hale's experience may be different in the East and South, but for us here in the West it is the best thing to do. L. A. GOODMAN.

I see a new scheme of making trees grow and of killing the insects, not only on the trees, but also upon the roots and on the leaves, and, wonder of wonder, upon the fruit and in the fruit itself, the much feared codling moth. Now, how just to do it is the question? Simply send to this firm $5 for the remedy and "it is applied on the body of the tree with a common broom." This magic cure will then permeate every part of the tree, kill all insects on the roots, leaves and in the fruits themselves. How any one can be fooled by such plans and such advice I cannot understand. And yet I suppose they will be. I only write this to you that you may caution the public from being imposed upon by this plan. It will not do what they claim for it.
L. A. GOODMAN.

Kansas City, Mo.

Peaches Hurt Everywhere

The outlook for a peach crop for the coming season are decidedly gloomy. The cold snap in December so badly injured the fruit buds in Missouri, Kansas and Illinois that nothing like a crop can be expected. The Michigan crop is said to have been seriously damaged by the same cold spell. Maryland, New Jersey and other Eastern states also report much injury, but to just what extent is not known.

And to add to the damage done in December, dispatches from Lockport, N. Y., state that the famous Niagara peach will be a scarce article in the market next summer, for the snowstorm that swept the country about Jan. 21 ruined all the young peach orchards in Western New York. The snow was wet and heavy. It clung to the branches of the trees and bore the limbs to the ground. Only the peach trees were destroyed, as their limbs are almost as brittle and as easily broken as a clay-pipe stem. Raising peaches is the principal industry along the shore of Lake Ontario. The damage to orchards in that end of the State will reach $500,000.

Altogether, we may safely say, even at this early date, that "peaches will be peaches," and it will be well to go a little slow on that liberal supply of canned peaches in the cellar.

HOW ABOUT PRUNING SHEARS?

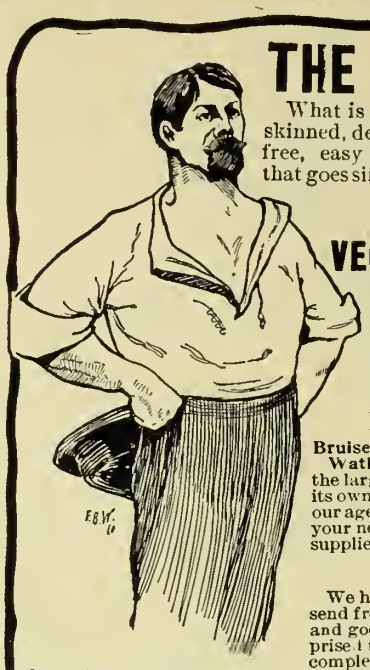
In an advertisement elsewhere in this issue, the Western Fruit-Grower offers some splendid pruning shears free as premiums for new subscribers, or they will be sent for cash. Read the offer, and get the shears at once, for you need them. Read what a nursery firm says:

"Your pruners just received, and they are all you claim for them. For ordinary use we like the small size the better.—Hart Pioneer Nurseries. Fort Scott, Kan.

NO TRANSFER AT CHICAGO.

All trains of the Baltimore & Ohio, Lake Shoe & Michigan Southern and Nickel Plate Railways use the Grand Central Station at Chicago. Patrons of the Chicago Great Western Railway desiring to go east via any of these roads will avoid transferring.

THE GLORY OF HEALTH.



What is more pleasing to the eye than an athletic, clear skinned, deep chested man, ready to toil or play, with the free, easy grace of perfect health? The kind of man that goes singing about his work, because he feels that way.

WATKINS' VEGETABLE ANODYNE LINIMENT

will not make a lazy man muscular, but it will keep the body in such perfect condition that the food you eat, the work you do, will all help to build up a big, strong body. It is the cold in the chest, followed by a troublesome cough that breaks down so many strong bodies. A dose of Watkins' Liniment will stop it all before the harm has been done. **No running for Doctor,** no paying big doctor bills. Use internally or externally for **Colds, Coughs, Colic, Diarrhoea, Dysentery, Cholera Morbus, Indigestion, Cuts, Burns, Bruises,** for **man or beast.**

Watkins' Liniment is good for so many diseases because of the large number of valuable ingredients, each of which does its own work, and does not interfere with the others. Let our agent leave a bottle at the house. If there is no agent in your neighborhood, write to us, and we will see that you are supplied.

A Valuable Gift.

We have a beautiful **Cook Book** and **Home Doctor** that we send free to all. It is full of valuable recipes and good wholesome advice. Everyone is surprised that we can afford to send out such a complete and beautiful book free. Write today. Send your name and address on a postal card.

THE J. R. WATKINS MEDICAL CO.,
36 Liberty Street, Winona, Minn., U. S. A.

of GREAT WESTERN INCUBATORS AND BROODERS
It is free, and tells all about our Wonderful
100 EGG $10.00 INCUBATOR.
This machine is the hit of the Incubator business. It actually holds 108 eggs, has three walls first grade poplar, 12 oz. cold rolled copper hot water pipe heating system, safety lamp, perfect regulator, nursery attachment, is easy to run and will give highest per cent of hatch.
Read This: We will send you one of these machines for 40 DAYS' FREE TRIAL. If you are not satisfied it is the best incubator out in every particular, send it back. Send for free catalogue at once.
GREAT WESTERN INCUBATOR CO.,
Dept. R. Kansas City, Mo.

Farm and Ranch is a great paper for great people—the home builders' guide to success, the producers' text-book. With all numbers on file a subscriber has a valuable library and an excellent source of reliable information for brainy, business home-seekers. Farm and Ranch is an education, a moral preceptor, an interesting, reliable and instructive weekly visitor to over 40,000 homes. When known to them every intelligent, progressive family in the Southwest will read it weekly. As a family, farm and stock journal it has no equal. Every department is under the charge of an editor of known, recognized ability. Its illustrations are unexcelled in attractiveness. At its price it is the greatest bargain ever offered the people. Three months, 25 cents; six months, 50 cents; one year, $1. Sample copy free. Liberal premiums and cash commission to agents. FARM AND RANCH, Dallas, Texas.

RELIABLE SEED HOUSE.

J. R. Ratekin & Son, Shenandoah, Iowa, have long been known as reliable dealers in seed corn, and this season they are branching out, and in addition to carrying a splendid stock of corn for seed, have a full line of all other kinds of seeds. This firm has been in business for a number of years, and during that time have built up a reputation for dealing right with its customers. This policy, and the fact that they send out the best of seeds, has made possible the enlargement of thir business to its present proportions. J. R. Ratekin & Son will send catalogue free to all our readers who will mention the Western Fruit-Grower when writing.

GENEVA SHIPPING CRATE.

The Geneva Cooperage Co., Geneva, Ohio, advertise a shipping crate in this issue, and we are sure many of our readers are interested in it. The crate is shown by illustration in the ad, and is 13 inches wide, 12 inches deep, 17 inches long; made of elm and is well suited to the uses to which it is put. This firm sells thousands of these crates for potatoes, apples, onions, etc., and those who are interested in this line should write at once for particulars. The company has a factory in Western Kentucky, from which Western orders can be filled.

IMMEDIATE IMPROVEMENT.

Pilot View, Ky., Oct. 9, 1901.
Heller Chemical Co., Chicago, Ill.:
Gentlemen—You will find enclosed amount to cover 1 qt. of Strengthening Tonic and 1 bottle of Pills. I am feeling better from your two weeks' treatment. Please forward treatment at once. E. ERVIN.

Those who have seen the Dewey Cling peach which is advertised in this issue by the originator, H. W. Jenkins, Boonville, Mo., are united in saying it is a splendid late peach for this section. The Dewey Cling is large, white, of exquisite qualilty, and its originator claims it is in many respects superior to the old Heath Cling.

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Fine stock of APPLE, PEAR, PLUM, PEACH, GRAPE, PECAN and other Nursery Stock. Write for list of prices. We are in a position to please you. Salesmen wanted everywhere.

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Long Distance Telephone No. 866 Red.

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The Practical Farmer of Philadelphia is one of the best general farm papers published. Its regular rate is $1 per year, but we have arranged to offer it in connection with the Western Fruit-Grower, both for $1.
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Send subscription to
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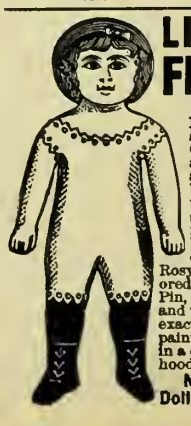

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Girls can get this beautiful Life Size Doll absolutely Free for selling only four boxes of our Great Cold & Headache Tablets at 25 cents a box. Write to-day and we will send you the tablets by mail postpaid; when sold send us the money ($1.00) and we will send you this Life Size Doll which is 2½ feet high and can wear baby's clothes. Dollie has an Indestructible Head, Golden Hair, Rosy Cheeks, Brown Eyes, Kid Colored Body, a Gold Plated Beauty Pin, Red Stockings, Black Shoes, and will stand alone. This doll is an exact reproduction of the finest hand painted French Doll, and will live in a child's memory long after childhood days have passed. Address,
NATIONAL MEDICINE CO.,
Doll Dept. 357 A, New Haven, Conn

Annual Nebraska Meeting

Report of Transactions of the Growers in Convention

THE annual meeting of the Nebraska State Horticultural Society which was held at Lincoln, January 14, 15 and 16, was fully up to the standard of previous meetings, and the interest manifested shows the increase of interest in horticultural matters in that state. In his report President Marshall told of the fruit crop of the past season, which was generally satisfactory, although early in the season there was much danger from drouth. He recommended that a delegate be sent each year to the meetings of societies in sister states, for, after having attended the Missouri and Illinois meetings, he was acquainted with the benefit received.

Delegates from other societies were L. A. Goodman, secretary of the Missouri Society and O. H. Barnhill, treasurer of the Southwestern Iowa Society. These gentlemen were on the program for papers and took part in the discussions.

C. S. Harrison, whose writings are well known to readers of the Western Fruit-Grower, read a good paper on "The Mission of Beauty." He was followed by G. A. Slayton of Salem, who recommended the more general planting of forest trees on the farms. He has planted freely of catalpa, walnut, ash and elm.

In the discussion which followed Prof. R. A. Emerson recommended that the trees intended for commercial timber purposes should be planted close, so as to grow, straight trunks. Secretary Barnard said he had just finished the erection of a mile of telephone line, and had used home-grown posts. They were European larch, 25 years old, 5 inches in diameter at top, and 20 feet high.

J. L. Coppoc of Holt County told of some growers in Northern Nebraska who have been very successful in growing fruit. For that section he recommended Banksian pines as windbreaks.

Harvey Marshall of the firm of Marshall Bros., Arlington, who have large commercial orchards and plantations of small fruits, read a paper on "Commercial Orcharding." He prefers elevated land, northeast slope better than any other; wants windbreaks on south and west. He gives level culture, and in planting leans his trees to the southwest.

J. W. Stevenson presented a carefully prepared paper on strawberries at the second day's session of the society. This gentleman is one of the leading strawberry growers of the state. He regarded the Bederwood, Haverland, Crescent and Up-to-Date as good family varieties, but rather soft for shipping. Bubach, Jessie and Bismarck were inclined to be soft and should be picked daily. Clyde, Sample and New York have strong roots and do not make many plants. He regarded the Sample as an ideal variety. Senator Dunlap is a popular variety from Illinois. Up-to-Date has been extravagantly commended. Seaforth was tender and suffered from heat and drouth. Jerry Rusk not satisfactory. He finds the New York to be a large berry with only a small number of runners. He favors planting Johnson's Early. Giant is one of our very best varieties, the size being very large. Gandy is one of the latest, but not sufficiently productive. With him Parker Earle sets very fairly when it is planted where it can be irrigated. He suggests as a reliable list of varieties the Bismarck, Golden Queen, Tennessee Prolific, Wolverton, Enormous, Mt. Vernon, Lovett, Princess, Saunders and Splendid.

Mr. Stevenson's method of cultivation is the use of the weeder. He has found great benefit from irrigation. He first used horse power with bucket elevator raising five thousand gallons per hour. Later he used a gasoline engine, pumping one hundred thousand gallons per day.

After new growth starts in the spring he sprays with Bordeaux mixture and paris green before plants bloom, and when dew is on sifts on lime which has been slacked with strong lye water or with Bordeaux mixture. If no fruit is in the way he adds paris green and flour to the lime dust, provided there are any insects to be destroyed. Lime also seems to be beneficial to plants, as it prevents rust.

Dr. Bessey told "How Trees Came to Nebraska." Prof. Bessey is always interesting, and his talk was much appreciated. He said many kinds of seeds are carried by the wind, other by water and still others by birds and animals.

The original apples were not made for man. The flesh of the apple was a bait that should tempt to have the apple eaten and thus be carried to new points for growth. The pawpaw, with its edible fruit, is distributed by small animals, and the seed of the hackberry by the birds. The seeds of the ash and the elm drift with the wind. The juneberry and the wild cherry are distributed by the birds. The red bud is carried by small animals. The maple with its winged seeds are carried by the wind. Of the sixty-five species of trees mentioned in the paper, eleven are distributed by the birds, five by birds and small animals, twenty-three by squirrels and small animals, twenty-six by the wind. Among the few trees which can be started in the dry prairie sod, the doctor mentioned the bull pine, which succeeds in grassy land without cultivation. More varieties of trees are found in southeastern Nebraska, indicating that they came into the state from that direction. Dr. Bessey read letters from close observers elsewhere showing the movement of trees and plants is steadily going forward.

Theodore Williams of Benson read an exceptionally good paper on "Plum Culture." Mr. Benson's work ranks with that of Luther Burbank and he is doing a wonderful work in crossing plums. At the Buffalo exposition he exhibited 170 hybrids, and received a gold medal for his work. Mr. Williams is an expert sweet potato grower, and experiments with fruits as a side issue. He does not believe commercial plum growing will pay, for there is not enough paid for the fruit. He has had good success in crossing Japanese and American plums, and says that if Japanese varieties are worked on American stocks they will be hardy. We hope later to present Mr. Williams' paper in full. It is very interesting, yet there are a great many persons who agree with Mr. Williams that plums will not pay commercially.

The election of officers resulted as follows: President, L. M. Russell; first vice-president, G. S. Christie of Johnson; second vice-president, J. J. Hess of Omaha; secretary, C. H. Barnard; treasurer, P. Younger; directors, G. A. Marshall, W. J. Hesser, E. F. Stephens.

The president, G. A. Marshall, prepared a paper on "How Shall the Planter Known Best What to Plant?" He reviewed the experience of planters during the early periods and in other locations. He mentioned the work of Peter Gideon who asserted that he would extend the apple belt 200 or 300 miles further north, and who did succeed in extending it 250 miles; mentioned the work of C. G. Patten of Charles City, Iowa, who in his life study of cross pollination, and the development of new hardy varieties, had done much to move the apple belt nort. The planter should seek varieties that will withstand dry weather, bright sunshine, and sudden changes. If the planted desires to work northwest, he should combine with these the ability to withstand undue cold. The intending planter should make himself acquainted with what is already growing in his own locality, selecting varieties that are succeeding. Should the planter be located far from orchards, and well tested varieties, then seek varieties growing under similar conditions. The native fruits to be studied everywhere, with the thought of developing something of value.

J. H. Hadkinson read a report of his work as superintendent of the Nebraska horticultural exhibit at the Pan-American exposition and told some of the facts he had learned while there. People from the eastern states were surprised to see such a fine exhibit of fruits from Nebraska. The Russel and Elberta peaches shown were second to none. The total expense of the exhibit was $2,310. A gold medal was awarded to the Nebraska State Horticultural Society and another to Theodore Williams for his display of 170 varieties of hybrid plums. The Ben Davis is more sought after for export than any other variety.

Hon. J. Sterling Morton, who orig-

SEED CORN THAT PAYS TO PLANT

THREE BEST FIELD VARIETIES IN EXISTENCE

"PRIDE OF NISHNA" a golden yellow, 16 to 24 rows, deep grain, medium small cob, maturing safely and soundly in 90 to 100 days. "IOWA SILVER MINE" strictly white, with white cob, the full counterpart of "Pride of Nishna" in every respect. "IMPERIAL WHITE," red cob, one of the surest and best croppers in existence, especially adapted to thi nsoil and unfavorable conditions, is robust and vigorous to a remarkable degree.

All our seed is carefully sorted, selected, and nothing but largest, best and most vigorous ears used for seed; butt and tip ends taken off before shelling and nothing used for seed except largest, best and most uniform grains. PRICE—$1.75 per bu; 10 bu $1.65, bags free aboard cars here. Write for FREE Catalog of all best Farm and Garden Seeds.

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The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD were marked in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring, and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

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300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

FOR MAPS, FOLDER, ETC., ADDRESS

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We offer to the trade this year a fine lot of trees of all kinds, small fruits, ornamentals, etc. Our stock is unusually fine, and unaffected by past drouth, as we had abundance of rain up to middle of July, and never a longer period than week or two without a nice refreshing shower, which kept our stock in thrifty condition. From the latter part of August rain has been abundant here, hence our stock is superior to that grown in localities where drouth prevailed to a damaging extent. Our handsomely illustrated catalogue and fruit manual free to all who apply.

Prices Are Right. Satisfaction Guaranteed in Every Way.

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Stock guaranteed to be No. 1, first class. Read what Mr. Nelson says about my apple seedlings last year. They are as good this year: "Lebanon, Mo., March 12, 1901. Wichito Nursery Association, Wichita, Kan: Gentlemen—The seedlings we purchased from you for our 1901 grafting were the best lot of seedlings we ever used; and will say that your number of trees that you shipped us as No. 2 were about as good as average No. 1. We made an average of 3000 grafts to every 1000 roots. Hope second order will reach us soon we want to clean up grafting as soon as possible. Wishing you success in your enterprise, we beg to remain, yours truly, A. Nelson & Son, fruit growers."

Also a general line of nursery stock. Write for ILLUSTRATED PRICE LIST and CATALOGUE free.

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25 Grafted Apple Trees for $1
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40 Concord Grape Vines for $1
We pay freight on $10 orders.

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100000 EARLY JERSEY AND CHARLESTON WAKEFIELD CABBAGE PLANTS, $2.50 per M. Mrs. MARK HANNA STRAWBERRY, the LARGEST, BEST SHAPE berry yet introduced. MARK HANNA, a seedling of Buback No. 5, same season, fully twice as productive. TOBACCO DUST for all kinds of insects $1.00 per 100; $18 per ton. Address Mark T. Thompson, Libbie Av., Rio Vista, Va.

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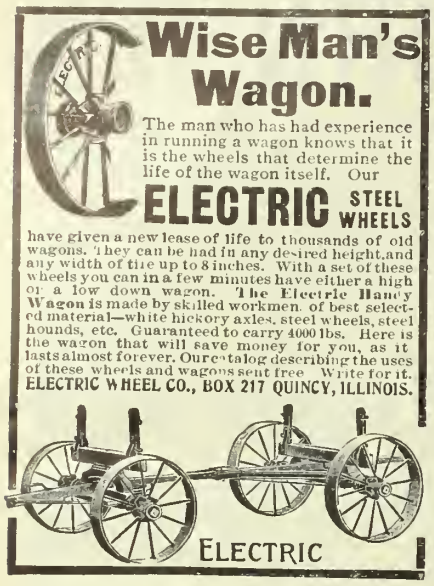
Allen L. Wood, Rochester, N. Y.



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The man who has had experience in running a wagon knows that it is the wheels that determine the life of the wagon itself. Our

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have given a new lease of life to thousands of old wagons. They can be had in any desired height, and any width of tire up to 8 inches. With a set of these wheels you can in a few minutes have either a high or a low down wagon. The Electric Handy Wagon is made by skilled workmen of best selected material—white hickory axles, steel wheels, steel hounds, etc. Guaranteed to carry 4000 lbs. Here is the wagon that will save money for you, as it lasts almost forever. Our catalog describing the uses of these wheels and wagons sent free. Write for it.

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Cheaper than Cornstalks

Protect Your Trees with

Veneer Tree Protectors

A positive protection against rabbits, mice, sun-scald and barking by careless cultivation. Will last for years. Send for circulars.

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Exclusive growers of peach trees. June buds a specialty. No agents traveling, but sell direct to planter at wholesale prices. Absolutely free from all diseases and true to name. Write us for catalogue and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest Peach Nursery in the world.

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450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

inated Arbor Day, told of its results. In 1872 Mr. Morton introduced a resolution in the State Board of Agriculture providing for the observance of one special day as a tree-planting day, or Arbor Day. R. W. Furnas suggested 10th of April as a suitable day, and four premiums were offered for the greatest number of trees planted. Returns from the competition showed that three million trees were planted. The speaker though by this time twenty-five billion had been planted. It is now celebrated in every state in the union, in foreign countries, and even in the islands of the sea.

By the president: "How are the ten thousand white pines, planted by Mr. Morton, succeeding?"

Planted 4x4 and now three to five inches in diameter, and 12 to 15 feet in height.

President Marshall also mentioned white pine trees in the river counties 45 to 50 feet in height. Mr. Isaac Pollard of Nehawaka had had his best success with the Austrian pine. His location is eight miles from the Missouri river. Mr. Beltzer of Polk County, planted Scotch and Austrian pines, and had them do well in their county. Mr. Morton called attention to the very large loss arising from planting evergreens which had not been properly packed in which the resinous sap had already hardened.

P. J. O'Hara, a student of the State University, presented a carefully prepared paper on some of the diseases of the fruit trees; mentioned a fungus disease arising from mechanical injury; also heart rot and root rot.

Mr. Goodman read a paper on "City Forestry," along the lines of the one read at the Missouri meeting. Among other things Mr. Goodman urged the protection of native trees. Urged more careful handling with the roots, which should be protected with burlap or hay. It is important in trimming to be sure to leave buds and shoots of the previous season's growth that the trees might bud into leaf soon after planting; mentioned that trees loved society, and do better when planted in groups.

Prof. Bruner contributed a paper on "Insect Enemies of Fruit." This paper will be specially illustrated for the forthcoming report of the society, and will be of great value. Prof. Bruner said, among other things, that during the past season, for thirty days, he had the students experiment with the moth traps in orchard which was very badly infested with codling moths. Over 12,000 insects were caught, but there were only seven codling moths in the entire lot. He recommends that the moth traps be not used, as does Prof. Stedman and every other practical entomologist.

O. H. Barnhill, delegate from the Iowa State Horticultural Society, presented a paper on "Cover Crops." What is a cover crop? "A crop grown in the orchard to cover the ground during the fall and winter months." Advantages as follows:

First—To protect the roots of trees from winter killing.

Second—To catch and hold the snow in winter, which in itself is a cover and also adds moisture.

Third—To add humus (decayed vegetable matter) to the soil. Where an orchard is given perfectly clean culture, the humus may be exhausted.

Fourth—To add fertility to the soil by adding humus.

Fifth—To prevent loss of nitrogen and other soil properties by leaching. At Ames, Ia., oats and rape sown in August have given best results. Cow peas are very extensively grown in the south as a cover crop, and add fertility to the soil, and under every condition is found one of the very crops to cultivate for this purpose.

E. B. Gay of Griswold, Iowa, planted cow peas in his orchard July 20, and they grew to two feet high.

Mr. Barnhill recited his experience in his own orchard of twelve acres, which being under good cultivation, made a vigorous growth and did well until the very trying winter in February, 1899. The orchard being perfectly clean with bare ground his trees suffered from the roots killing. Proceeding with his subject Mr. Barnhill discussed the comparative advantages of oats, rye, cow peas, hairy vetch, rape, with the result, that while he felt that hairy vetch was one of the best plants to use for the purpose the seed was not obtainable in commercial quantities. When there was moisture enough the first of August to sprout seeds, very favorable results were obtained by sowing oats, and quite likely it would be practicable to make use of the cow pea.

This paper aroused a great deal of discussion. L. A. Goodman of the Ozark Orchard Company of South Missouri, discussed their methods in the cultivation of orchards comprising one hundred and forty thousand apple trees and thirty thousand peach trees. They use cow peas freely for summer cover to the extent of three to four hundred acres each summer. In their mild climate where they can plow, and where rye will grow most of the winter, they plow under these cow peas in the fall and seed to rye. The rye is allowed to grow until late spring and then that is turned under. In that way they increase their store of soil fertility. In their climate and in their soil it is best suited to success. Their method of culture there is to rely on the two horse plow for the middle ground between the rows of trees, plowing from three to four inches in depth. The last four furrows next to the trees are plowed with one-horse small plows, cutting about two inches in depth.

Mr. Youngers of Geneva remarked that in gathering fruit in Nebraska for fairs the pickers find best fruit in well cultivated orchards. Their habit is to plow twice, and also disk or harrow ten times during the season. The discussion developed the fact that the annual rain fall in South Missouri was 36 inches; in central and eastern Nebraska 20 to 28 inches, that in Nebraska summer crops in the orchards, divided and abstracted, needed moisture from the orchard trees.

Inquiry from a member: Shall corn be planted in young orchards? Answer by President Marshall: We plant corn for a year or two. We once planted potatoes in the orchards and found potatoes invited gophers which were very difficult to handle and we no longer plant potatoes in the orchards.

A gentleman from Richardson County tried plowing the central spaces between the rows, leaving the surface rough for winter. He, however, left an eight foot strip next to the trees in cover crop. A gentleman reported experience in Massachusetts; orchards being grazed by hogs were comparatively free from codling moths.

Dr. Bessey read a letter of regret from Prof. Herman Von Schrenk, stating he was confined to his bed by a serious illness and regretted that he could not be present.

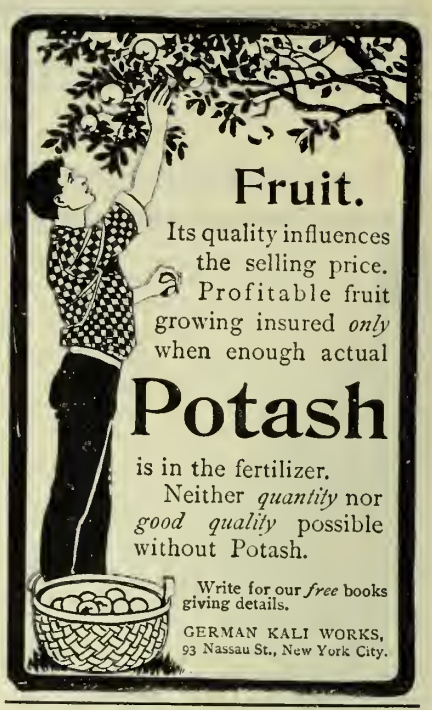
Ned Raymond of Omaha, presented an excellent paper on the influence of horticulture in our state institutions, that the deaf and dumb institute has planted about 200 apple trees, about 600 grape vines, and other trees and plants. The influence of horticultural work had been found very favorable in the training of children of the deaf and dumb institute.

In the discussion which followed illustrations of the very successful work of the Kearney school was mentioned. There they have succeeded in growing surprising crops of strawberries, fruits and vegetables. The policy of extended work along horticultural lines, and the training of inmates of state institutions in horticultural work was highly commended.

Prof. R. A. Emerson of the state university, presented a paper on the important subject, "Self Sterility in Apples," quoting the results of his own experiments and his own study, and also the work being done by scientific men in other schools.

He said while large blocks of single varieties seem to succeed well in some localities, intermingling of varieties for fertilization is generally desirable.

Prof. F. W. Taylor, representing horticulture at the St. Louis world's fair, suggests that the Pan-American exposition taught a lesson of the aid to be obtained from the previous season's crop carried over by cold storage. New York, Illinois and Missouri, all through from opening to close, had their exhibits in good form. He urged the supreme importance of gathering ample supplies of choice fruit and placing some in cold storage, enough, not only to open the exhibit, but to assist in covering defects and short supplies at any time during the exhibit; urged the value of gathering the cream of exhibits from the states into a central exhibit in some portion of the exhibit, where the very best from each state exhibited should be condensed on a central table enabling horticultural students to see the very best from all the states, and comparing the appearance of any one variety in one state, and behavior in all other states. At St. Louis they proposed to avoid the errors in buildings and methods of previous exhibits. Prof. Taylor's familiarity with this work enabled him to discuss the defects of previous exhibits, from which he believed the coming exhibit in St. Louis would be free. The



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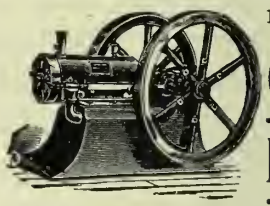

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building for agriculture and horticulture has a floor space of between 32 and 33 acres.

Prof. Taylor, former secretary and president of the Nebraska Society, has been appointed chief of agriculture and acting chief of horticulture. It is hoped to make the agricultural and horticultural exhibits the largest and best ever made in the world. By resolution the whole subject of exhibits at St. Louis, with power to act, was placed in the hands of the executive board of the society.

L. M. Russell's paper was on "Last Season's Peach Crop and Its Lessons." Their crop last season was about 30,000 baskets. When they commenced planting many years ago they used 45 varieties. The major portion of the last orchard has been planted with Alexander, Early Rivers, Hale's Early, Russell, Triumph, Champion, Hills Chili, Crosby, Elberta, Wright and Salway. Culture is three years in corn, then cultivated to middle of July, after which weed growth for the rest of the season. Mr. Russell favors the extended planting of peaches in this climate. Trees come into bearing at an early age, usually about the third or fourth season. Not infrequently the best trees yield a bushel the fourth season.

A paper on "What Can We Do for the Oold Orchards?" was read by E. F. Stephens, Crete, Neb.

Much amusement was created at this point by the reading of a humorous paper on the relation of the nursery man to the tree planter, by Mr. Youngers. In a happy vein this hit off the work of the lightning salesman and the surprising gullibility of many of the tree planters; mentioned that in Fillmore county a salesman was actually selling peach trees at $1 each, and these peaches were warranted to keep well into the winter, to be used from the cellar like Ben Davis apples; there was also mentioned the sale of peach trees budded on the maple to give them harder wood. The best thing for the intending planter is to keep carefully posted in the horticultural literature and methods of the day.

The location of the summer meeting was left to the executive board, and those towns or societies desiring to have the society meet with them during the coming summer are asked to communicate with the secretary, Mr. C. H. Bainard, Table Rock.

GROWING STRAWBERRIES.

Those readers of the Western Fruit-Grower who have complained of the dearth of sttrawberry notes in the Western Fruit-Grower will be pleased, we are sure, with the matter on the subject of this delicious fruit, in this issue. Wm. S. Crawford, whose notes appear elsewhere, is an up-to-date grower. and the following article is another good one, by J. R. Reasoner, Urbana, Ill., who originated the Senator Dunlap strawberry. Mr. Reasoner is an experienced man, and has certainly produced a good berry in the one which is named for the president of the Illinois State Horticultural Society. This paper was read before the meeting of the Illinois State Horticultural Society, and Mr. Reasoner sends a synopsis for the readers of the Western Fruit-Grower:

"If we could bring a paper telling all that we do not know about the strawberry, it would probably be far more interesting than this. But we should not be willing to trade the little which we think we know for all of the unknown. I shall try to give some directions regarding the methods which have been operated with some degree of success, and which may, to some extent, answer some of the many questions which are constantly coming.

"Any soil that will raise corn will produce strawberries. If pasture lands or meadow is used, there is danger of trouble from the grubs, unless it has been farmed one year in potatoes, or some other hoed crop. Moles will help to clear the ground of grubs; but where strawberries are planted the moles must be exterminated. The double harpoon trap will take them almost every time. Planting strawberries in the fall usually results in failure. Manure, and plow the ground in the fall. Disk, harrow and plant as early in the spring as the ground can be worked. By all means, do not delay till the hot and dry weather, which is liable to come in May. For field cultivation the rows may be three and one-half to four feet apart and the plants in the row two feet. For planting, we know of nothing better than to stretch a line, take a narrow spade, thrust it into the earth perpendicularly, move it backward and forward, and you will have a hole to plant in. The crown of the plant must not be covered. The soil should be well pressed around the plant. The roots of the plant should not be exposed to the wind and sun longer than it is possible to avoid. If it happens to be a dry, warm day, it is better to puddle the roots.

"To get the ground in the best order for cultivation and moisture, the beaking plow should be run but little over four inches deep and followed by a subsoil plow that does not throw the subsoil out on top, but allows it to drop back into the furrow. This helps to retain the moisture for an emergency, if the surface is kept well cultivated and pulverized; otherwise it may be an injury. If pistillate plants, such as Bubach, Warfield, etc., are used, every third row should be of some standard variety. As soon as possible after planting, commence cultivating, with a tool that will not ridge up the plants, but will leave the space between the rows as level as possible. As soon as possible after each rain the ground should be cultivated, to break the crust and prevent baking and cracking. Shallow cultivation is to be preferred. If you have a good crop of berries, you are certain to have a very poor crop of weeds.

"Much complaint is heard of plants dying after having been planted. One correspondent says that he paid a big price for plants which seemed to be all right. He planted early and gave them good culture, but most of them died. What was the cause? The probabilities are that the plants were dug from the row, and scattered along, exposed to the wind and sun till it was convenient to gather them up, and until the roots had become thoroughly dry. A few moments of wind and sun are sufficient to injure or kill the plant. The roots may be moistened, and will seem all right to the superficial observer; the stock and foliage may show little or no sign of injury, but you have a dead plant, or that which is but little better.

"For digging, there should be provided a box or basket, lined with a dampened cloth, and cover of same. As soon as dug the plants should be placed in it. If the ground is very dry, the roots may be dipped in water; or, if wet and sticky, the roots may be washed in a pail of water carried along for the purpose. If we have rare or feeble plants, or if the weather is hot and dry, it is but a small job to put the plants in three-inch pots and sink them in a cold frame, where they may be shaded and watered till they have become well rooted, when they may be turned out and planted. But care must be taken to harden them by giving less water and exposing them to the sun a few days before planting. This is the only way that I know of to save plants in very dry and hot weather, or when their roots have been seriously injured.

"We are frequently called upon to assign a cause for the deterioration of a given variety of strawberry, and other fruits. We offer the following suggestions for what they may be worth: All living things, animal and vegetable, have their individualities and diseases, which may be transmitted. We have several distinctly marked types of Rambo, Baldwin and other apples, all of which have descended from the same parentage. Scions or grafts taken from these—allowing for local conditions, accidents, etc., produce approximately the same.

"The abnormal may be developed and to some measure become confirmed and transmitted. We discover established tendencies with men and domesticated animals; why not in the vegetable world? The tendencies to abortion and sterility may be produced, confirmed and become hereditary. Therefore, if these premises are valid, we may conclude with mathematical certainty that the perpetual cutting of grafts from trees in the nursery row, which have never fruited, nor their ancestors for generations before them, and continuing the method without limit, that such trees are liable to become diseased, impotent and barren. That may account for so many failures in apple orchards—and with other fruits. Should not the horticulturist show as much concern as the stock breeder?

"In planting an orchard of any size, should we not prefer to purchase, if necessary, at $1 each, trees which have been propagated from the best type of bearing trees, and which have a record, than to accept as a gift trees which have been propagated after the ordinary methods? The same thing will apply with double force to the strawberry.

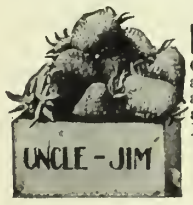
"In propagating strawberries from old beds, there is danger of getting seeedlings which have come from berries which have rotted on the ground, or from barren plants. The heavy-fruiting plant does not make many new plants. All of its energy is required to bring forth and ripen its fruit, whilst the non-bearing plant is usually very prolific in making plants. If we take our plants from the bed that is not allowed to fruit, and repeat this operation from one generation to another, is there not danger that they have acquired or inherited disease, impotence or sterility? What shall we do?

"The only safe plan that we can suggest is to propagate from selections. Select the ideal plants from the time the buds swell for blooming until the fruit is half-grown, pull off the fruit, remove contiguous plants and stick down a marker. The layers may then be grown in pots, or otherwise, and removed to the propagating bed; or the plant may be immediately lifted in such a way as will not seriously disturb the roots, and placed in the propagating bed. But the fellow who should attempt to propagate all of his plants in this way, for commercial purposes, could not begin to compete in price with the other fellow who propagates the other way.

"Another method of improving the strawberry is to hybridize with the best varieties, raise from the seeds of selected berries, and, when the plants have fruited, make selections from the best. No plant should be put upon the market until it has been thoroughly tested in various localities, and fruited from three to five years.

"After many experiments we are forced to the conclusion that it does not ordinarily pay to fruit a bed longer than one year. Our experience has been that it requires more labor to work over and cultivate an old bed than to raise a new one; and then the results are not so satisfactory. The one-year-old plants usually produce the best berries. J. R. REASONER.

"Urbana, Ill."



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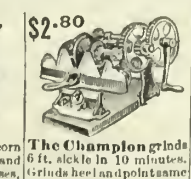
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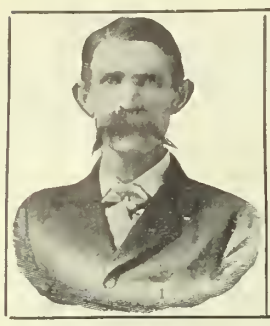

Poultry Dept.

Conducted by W. P. Laird Oil City, Pa.

IS THE DUCK AND BROILER A FAILURE?

We are frequently asked is the above heading as a business a failure? We answer, No! Not by any means. Some failures may be noted, it is true. For every one failure in raising green ducks there are ten who make a failure in raising chickens. But the same evidence is applicable to merchandising, manufacturing or farming—in fact, every business in which men and women engage are failures.

Because hundreds have failed in that business, does it follow that that business is a failure? Most assuredly not. It is simply the person, who is, in most of the cases, a dismal failure, and not the business. Hundreds of men every day who have made a failure of everything they have attempted finally resort to the raising of ducks and other poultry as a means of retrieving their supposed long-lost health and fortune, and as this business, like any other, requires business tact and hustling, these people, lacking these essentials, make a woeful failure, as usual. Learn something of the business. Start in on a small scale. Learn something of the hatching and rearing of ducks and chicks first. In other words, get your experience cheaply. Then you are equipped for embarking in the business on as extensive a scale as your capital and energy will permit, and with a system and the same attention that you would devote to any other business of equal value, the chances are that you will not make a failure of it.

Everything should be taken account of. Your stock should be well looked after, fed and cared for systematically. If hens are allowed to set and care for the chicks and ducks, then certainly you cannot expect success, for no other business left to chance will ever succeed. Poultry raising in this way has been the cause of thousands of miserable failures, and consequent deriding of the business, such as that there is no money in the business, no man can ever make it pay, etc.; so people are few and far between who know anything of the actual profits derived from stock rightly handled on a poultry farm. By the aid of incubators and brooding systems, success may be attained, in connection with the other requirements previously mentioned.

❖

QUESTIONS AND ANSWERS.

Q. Why will I get no eggs from the excessive feeding of corn or wheat?

A. Looking over the proportions of elements in the composition of corn, we notice that a bushel of corn has but little lime, less than seven pounds of protein and forty-one pounds of starch (in 56 pounds of corn). A bushel of corn does not therefore supply the white (albumen) of five complete eggs. But there are forty-one pounds of starch, and that is what we wish to notice. If a hen must eat nearly two bushels of corn to supply the protein of eight eggs, she must at the same time eat about eighty pounds of starch. She uses some of this starch, also the fat in the corn, to produce the yolk, but what becomes of the balance of this starch? Why it is converted into fat and is a detriment to her health, as well as an obstacle to her proficiency as a layer.

Q. what kind of grain feed do you consider best for ducklings?

A. We find nothing better than rye sown early in fall. This on good land will begin to grow nicely before cold weather comes on, and is the first thing to grow up in early spring. We cut this rye in half-inch lengths in cutting boxes and mix it with the ground grain. Corn planted every two weeks in spring answers this purpose, too, and is prepared in the same manner. Nature calls for this green feed; besides, it saves the ground feed. Cease to feed the green stuff two weeks before marketing.

Q. I have some hens that eat their eggs as soon as they are laid. What must I do to break them of the habit?

A. Some give as a cure to take a sharp knife and cut off a little of the upper bill. A very sharp knife should be used, and be careful not to cut too deep. If this does not cure her cut her bill off just one inch behind the ears. We have found that a sufficient quantity of meat will do more to overcome this habit than anything else.

Q. Do you think it pays to save the feathers from Pekin ducks? When is the best time to pick them, and what are the feathers, per pound?

A. Yes, it pays well to save all good feathers. They will nearly pay for the picking and preparing for market. We never pick our breeding birds, but save the feathers from ducklings when picked for market. We received 42 cents per pound for our feathers the past season.

❖

PRACTICAL POINTERS.

An interesting and profitable study is poultry culture rightly handled.

Hens that have no exercise fatten more readily than those at large.

Yes, the same old story—nine times in every ten you feed too liberally.

It is admitted by all that the hatching of a duck or chick is simply a natural process.

In other words, you will succeed if you ought to; if you fail, it will be your own fault.

Eggs from hens overfat never hatch well and those that do hatch, the chicks will be weak and short-lived.

In a business of this kind, as stated before, much depends upon careful attention to details. These must never be neglected.

Many impoverished farms today, throughout the country, can be made profitable by raising of Pekin ducks and other poultry.

Poultry raising is a sure business when one understands it, because you can generally control the conditions which assure success by attending to it.

Very often the grit in different parts of the country is too fine for poultry, and in this case you have to furnish them coarse grit for masticating their food.

Grit is the chickens' teeth. Good mastication means good digestion; good digestion means perfect assimilation of food. All poultry, to thrive, must have this.

A person will take more interest in chickens and ducks if they grow them artificially, because it makes more pleasant the quality of work. You learn them more closely.

A fat hen lays but few eggs, because her generative organs become obstructed, hence the result is soft-shelled eggs, double-yolked eggs, misshapen and small eggs, etc.

Poultry raising, like dairying, the raising of fruit, hogs or cattle, has become a science. Anyone, to be successful, must make this business a study, as they would any other.

The greatest advancement in the poultry business has been the advent of a good incubator and artificial brooding. You may have fresh and fertile eggs from healthy layers, but if you have a worthless incubator and brooding system you are in a position to lose money.

Green bone is a good egg producer, as it is rich in the material required for eggs, and it also keeps a flock of birds in good health.

In reality, a good bone-cutter should be looked upon not as an additional expense to the owner, but as an essential to the success of the undertaking. It cuts down the feed bills, reduces losses, increases the yield; and this is what we are looking for.

In buying a bone mill, the poultry man should exercise due care and discretion. Of course it is his aim to secure the best for the money. There are several bone mills that will do the work and are worth the price, while there are a number offered to the trade that are more suitable to grace a junk pile than a poultry man's feed room. We tried some dozen different makes before we found one that would do what was claimed for them. All our mills are run by steam power, the bone mill cutting 300 pounds an hour.

We expect, in a few years hence, to find incubators and brooding systems on most of the farms of practical, sensible and hustling farmers, just as harvesting and other machinery that lighten labor conduce to human happiness and to cheaper and better living.

Over-heating eggs in an incubator at the start may show no bad results until pipping time; then, from that cause alone, a great many ducks and chicks will die in the shell. Then, again, the bill of feed is very often the cause of hatches coming off badly.

Feeding stimulating food to make hens lay beyond their normal capacity will produce eggs that will never give a satisfactory hatch, and the chicks and ducklings will die at all stages.

Too low a temperature all through the hatch will cause chicks or ducklings to die in the shell, and those that do live and get out will be retarded, coming out late, and the chances are slim for their reaching maturity.

You are often told in several of the various incubator catalogues about special duck machines. An incubator properly built for hatching hens' eggs is rightly arranged for hatching any kind of eggs, the only difference being in the size of the machine and different treatment.

The vitality of a chick is dependent upon two things: Strong, fertile eggs, and the proper applying of the process of incubation. To get the first you should have strong, healthy and vigorous breeding stock, and, as to the second, be sure that you have an incubator that is worth the price you pay for it. Never buy one because it is cheap.

Green bone makes the hens lay, this time of year, when eggs mean money; for this is when they bring the highest prices.

W. P. LAIRD.

❖

GENUINE CHICKEN CHOLERA.—There are more cases of cholera reported than really exist. Indigestion and lice kill the majority of these fowls, and cholera gets the blame, says the American Poultry Journal.

In cases of indigestion the fowls are sluggish, appetite poor, the droppings scant and unhealthy and the crop soft. Indigestion is caused by lack of sharp grit, injudicious use of grain and a debilitated system.

Give a good family liver pill each night for three nights in succession; feed chopped onion, and in severe cases add ten drops of nitric acid to a quart of drinking water.

Cholera is of miasmatic origin, epidemic and very contagious. The principal causes are overcrowding, bad sanitary management and unwholesome or irregular food. Of all diseases, cholera is the least understood, as many of the symptoms are also identified with other troubles, like indigestion, enteritis, etc. The external symptoms of a droopy appearance. The bird does not plume itself, and has a great thirst; it has a slow, staggering walk, and gapes frequently. At times the bird falls down from weakness. The comb and wattles become pale at times, and then dark. The droppings are at first either of a greenish color or like "sulphur and water," and afterward they become thin and frothy. Prostration comes on, and the crop fills with mucous and wind; the food does not digest; there is heavy and quick breathing, the eyes close, and in a few hours the fowl is dead. A post mortem of the fowl will find the gizzard filled with dried-up food, sometimes with a greenish matter, and the crop inflated with sour mucous and food. The liver is enlarged

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It tells how to increase the egg yield. The Dandy, the easiest turning of all bone cutters, is sold direct on 30 days' trial. Price, $5 up. Handsome Book Free.
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of prize winning poultry for 1902, printed in colors, illustrates and describes 50 Varieties of Poultry; gives reasonable prices of eggs and stock. Many hints to poultry raisers. Send 10c in silver or stamps for this noted book. B. H. GREIDER, Floria, Pa.

DON'T SET HENS the same old way when our new plan beats it 10 times. 100 Egg Hatcher Costs Only $2. Over 94,000 in use. 1000ds test'ls. 5000 agents wanted for 1902. either sex. Pleasant work. Big profits. Catalog and 10c Egg Formula FREE if you write today. Natural Hen Incubator Co., B136, Columbus, Neb.

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Latest improvements, strongest guarantee, easily operated. Write for free catalogue, which contains much valuable information. Address, Klondike Incubator Co., Box 918, Des Moines, Iowa.

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(Double Reflex.) Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

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We have the best equipped plant in the West for the printing of Nursery catalogues, price lists, blanks and stationery of all kinds. We can quote you prices on special engraved designs, half tone cuts, etc. Make a good impression on your prospective customer by having modern, up-to-date printing—it will pay you. Write us when in need of anything in the printing line and let us figure with you.

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MONEY IN POULTRY The farmer who raises for market; the beginner just starting in the business; the village poultryman; the keeper of a "few hens," on a city lot, will find help in THE POULTRY KEEPER.
An Illustrated Poultry Monthly Magazine. One of the oldest and best. Established in 1884. Contains advice on mating, feeding, housing, remedies for poultry aliments, special articles by experts. 50c per year, 10c for 3 mo. trial. Poultry Keeper Pub. Co., Box 902, Quincy, Illinois.

How to Get the Cash

In 1863 there was established in Kansas a publication, an authority on Western horticulture and the best and most reliable systems and methods of fruit growing in connection with other agricultural pursuits. That paper is the "old reliable" weekly,

Kansas Farmer

It has grown in strength, usefulness and prosperity as the Kansas City territory of the Missouri Valley, Kansas and Oklahoma has developed, and this territory is thoroughly covered by its weekly visits. Every farmer and fruit-grower needs this 20 to 32 page paper. Annual subscription price is $1.00. Any subscriber to the Western Fruit-Grower, who will mention this advertisement, can have the Kansas Farmer sent one year half-price—50 cents—as an introductory offer.
Any reader having anything for sale to farmers in the territory contiguous to Kansas City will find the Kansas Farmer the most profitable medium to use. Address

KANSAS FARMER CO., TOPEKA, KANSAS

and flabby, and so tender that it can be readily mashed in the hand, is generally split open and in every case much congested. The crops and intestines are inflamed, and the latter are filled with greenish matter. The heart is also sometimes enlarged.

If you should be so unfortunate as to have the real cholera in your flocks, apply the best remedy recommended for roup—viz., the block and hatchet.

❖

WATERING HENS.—There is probably nothing that prevents hens laying in the winter more than being obliged to drink snow water and furnish heat from their own bodies to melt it, says The Epitomist. Yet, owing to the want of a good drinking fountain, many fowls are subjected to this treatment, it being too much trouble for their owners to water them regularly, when the dishes are frozen solid, with the seams, perhaps, all gaping. A fountain made in the following way will eliminate this trouble: Take deep, square baking tins holding about three pints each, composed of one piece, with folding corners, so that they will not leak. These cost but a trifle and if properly cared for will last for years. Freezing cannot burst them, and they can be easily emptied without having to melt the ice, by pressing on the bottom with the ends of the fingers while pulling off with the thumbs on the rim, first on the ends and then on the sides. Next fasten blocks about two inches square and six inches long to the side of the poultry house, where it will be the most convenient for the fowls to reach them, and so that the top will not be more than six inches from the floor. Set the pans on these and drive two small wire nails just over the rims of each, bending them down slightly; this makes it simple for the pans to be removed and cleaned, while at the same time they are high enough and so near the side that the hens will not scratch dirt into them nor roost on them.

❖

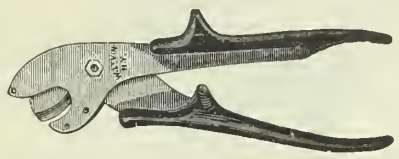
POULTRY RAISING IN KANSAS.—The Kansas State Agricultural College has recognized the importance of the poultry industry in that state and has extensively advertised the special course of instruction in poultry to be given the third week of February. From present indications, they anticipate an average daily attendance of 1,000. Poultry breeders from all over the West have signified their intention of attending the course. The college has made special preparation to accommodate the large number of people, and has arranged for a large room with all modern conveniences well adapted for the purpose. All varieties of fowls will be used to illustrate the lectures and the course of instruction will be made as practical as possible. For a long time the Rhode Island Agricultural College has been the leader in this work, but with this course introduced in Kansas and other western colleges, we predict that the Middle West will become the leaders in poultry education. Missouri, Kansas, Oklahoma, Iowa and Nebraska—especially the three first named—should adopt this plan of having short courses in poultry-keeping, for the poultry industry in each of these states is an important one, and should become more profitable to all connected with the business.

❖

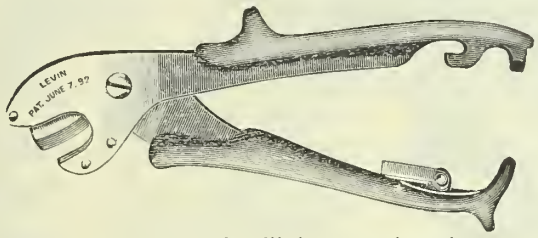
FEEDING NEWLY-HATCHED CHICKS.—The chick's first feed should be pinhead oatmeal, prepared especially for chicks, and should be given them as soon as they appear hungry. Oatmeal should be before them all of the first day, after they appear hungry, as they will not eat enough of it to hurt them. For the second day, feed oatmeal in the morning, at noon and the last thing at night. For the forenoon feed give bread crumbs moistened in sweet milk, and boiled eggs chopped fine should be given in the afternoon. Have some call and give it at every feed, as they will soon come whenever you give it. Do not try to force any of them to eat; rather let them wait till they know what hunger means, when they will come quickly enough.

We have received the catalogue of John W. Hall, Marion, Maryland, whose advertisement appears in this issue. From it we find we made an error in our January number, for the ad said the catalogue was the "Second annual catalogue," when it should have read "Twenty-second." Thus it will be seen that Mr. Hall has been in business for a long time. He advertises strawberry plants, blackberry plants, asparagus roots, etc., together with seed potatoes. See his ad and write him for catalogue.

Need Pruning Shears?



Pruner No. 1 will be sent for two new subscribers at 50 cents each, or will be sent postpaid for 75 cents cash.



Pruner No. 2 will be sent free for three new subscribers at 50 cents each, or will be sent postpaid for $1.00 cash.

From the present time until spring pruning shears will be in demand; grape vines, bush fruits, etc., must be cut back before buds open. Realizing that most of the readers of the Western Fruit-Grower will need a good pair of shears, we have arranged to furnish the celebrated Levin Pruner. This pruner is made in two sizes and is guaranteed by the manufacturers and by us. The two sizes are shown in the accompanying illustrations. No. 1 weighs 7½ ounces, and will cut a half inch stick of dry oak. No. 2 weighs 13 ounces and will cut a three-quarter inch stick of seasoned oak. The cut is made smooth and clean by both of these pruners, and they are remarkably strong for their weight—in fact, we know of commercial grape growers who use even the lighter size for pruning their vineyards, owing to the lightness of the tool and the effectiveness of its work.

The Western Fruit-Grower has a little folder, with list of horticultural and agricultural books which we offer as premiums. This booklet will be sent to all who request it, and you will be surprised to find what a good library you can build up, simply by getting a few new subscribers for us.

For the booklet or the pruning shears, address

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ST. JOSEPH, MO.

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Special low price on apple in lots of 500 or more. Good lists of varieties. Write for prices.

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Your name and address on postal card mailed to Reliable Poultry Journal, Quincy, Illinois, will bring you free sample with elegant full-page color plate frontispiece showing in natural colors a pair of standard fowls, reproduced from oil painting by Frank L. Sewell World's greatest poultry artist. Sixty-eight to 160 pages monthly, 50 cents a year.
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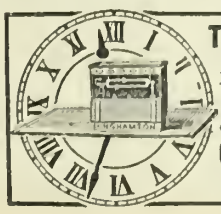

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By poultry editor of Vick's Family Magazine, Rochester, N. Y. Blank and sample copy FREE

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Has a superior collection of Evergreens, Trees, Shrubs and Flowers. A fine lot of Columbines, Clematis, Oriental (perennial) Poppies, Beautiful Imported Phloxes, and the finest collection of Paeonies west of Chicago. Nearly 200 varieties. Send stamp for Paeony pamphlet.
Also Rocky Mountain Evergreen seeds.

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We will send you the Twentieth Century Farmer, a 24-page illustrated weekly, the best family agricultural paper published either East or West, to your address for three months absolutely without cost, if you live west of the Mississippi River, and will send us a list of not less than forty names and addresses of prosperous English speaking farmers, or stock raisers, living in your county. THE TWENTIETH CENTURY FARMER, 1628 Farnam St., Omaha, Neb.

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Dealers in Berry Box Material, Grape Baskets. Egg Case Material. All kinds of Baskets in stock.
Established 1884.

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Send ten cents to pay postage, also names and addresses of five of your farmer friends and we will send you the MISSOURI VALLEY FARMER for one year free. Regular price 50 cents. The Farmer is one of the best farm papers in the west and will tell you more about agriculture and live stock conditions in the great southwest than any other publication. It will tell you all about opportunities in the west for people without capital, and how you can obtain free homes and good farming lands. It is filled with western stories and up-to-date articles written in the breezy style of the west. The Farmer is the most popular family paper in the west and has a greater circulation than any other publication of its kind.

Missouri Valley Farmer, Topeka, Kas

1427 Silk Fringe Cards, Love, Transparent, Escort & Acquaintance Cards, New Puzzles, New Games, Premium Articles, &c. Finest Sample Book of Visiting & Hidden Name Cards, Biggest Catalogue. Send 2c. stamp for all. OHIO CARD CO., CADIZ, OHIO. **CARDS**

YOU NEED

A stimulant occasionally. The digestive organs, the liver, the kidneys and bowels lose their effectiveness at times and need help. At such times a stimulating, cleansing and regulating medicine is of priceless value because serious diseases spring from neglected disorders in these organs. An admirable stimulant and system regulator will be found in

Prickly Ash Bitters

The uniform success of this remedy in correcting disturbance in the system is due to its four-fold cleansing and regulating effect. It is in the first place a kidney remedy of superior merit. Second, it is a successful liver tonic. Third, it tones up and strengthens the digestive process in the stomach. Lastly, it purifies and regulates the bowels. By removing obstructions and impurities in the blood, liver and bowels and strengthening the digestion, the whole internal organism is improved, because there is unimpeded action in all the organs that assist in maintaining health and strength. As a result of this condition the MAN becomes himself again, he feels at once a brightening up in body and brain, renewed energy, snap, vim and activeity. PERMA-

As a household remedy to relieve indigestion, sour stomach, bad breath, belching, flatulence, bloating after eating, and for keeping the system in perfect order it is invaluable. Wards off sickness, cures kidney diseases, nervous weakness, disorders in the urine, bladder trouble, headaches, heartburn, dizziness. NENTLY CURES A CONSTIPATED HABIT.

PALPITATION OF THE HEART.....

Many persons are subject to spells of violent heart throbbing, so severe at times as to be almost painful. They regard this as an indication of heart disease and often worry about it, thus aggravating the trouble. Ninety-nine per cent of these "heart troubles" are due entirely to disorders in the stomach and digestion and can be cured by applying proper treatment. For this purpose PRICKLY ASH BITTERS is an effective remedy, it cleanses and tones up the stomach, strengthens the digestion, regulates the liver and purifies the bowels. By overhauling and correcting the system in this way it removes the cause of the heart symptoms and helps to build up a strong and vigorous body.

GRAFTS

Thirty years' experience in putting up grafts for the trade. We make any style to suit purchaser. Piece or Whole Root on straight or branched Seedlings. Each order is grafted by itself by old and competent workmen.

APPLE SEEDINGS

Graded to the highest standard; any grade desired. Straight or Branched roots.
APPLE, CHERRY, PEACH, PLUM, Shade Trees, Small Fruits, Shrubs and Roses.
In fact, we carry the largest line of general nursery stock in the West. Send list of your wants for prices.
Correspondence invited.

Shenandoah Nurseries

D. S. LAKE, Prop., Shenandoah, Iowa.

Strawberry Plants

Purity, Vigor and Quality

Are the characteristics of my plants.
The great drought was terrible, but it left me about 1,000,000 Plants of the FINEST QUALITY I HAVE EVER GROWN. You will appreciate what this means when I tell you that I filled more than 1000 orders last spring and did not receive a single complaint from quality of stock. GOOD PLANTS are scarce this year all over the country, and will be higher in price than usual, but Strawberries will be still higher for several years to come. It will be at least 4 or 5 years before the usual acreage is reached. It will pay you to plant liberally this Spring. Send for my free price list today.

DR. E. L. BEAL, Republic, Mo.

SEND 50 CENTS for most interesting tree—
The Pennock Hybrid Cherry
Cross of Improved Dwarf Rocky Mountain cherry on cultivated plumb, presumably. Moore's Arctic. Fruit has traits of both cherry and plum; tree of upright growth and hardier than either parent, as shown by that hard winter.

The Pennock Nursery and Seed Co.
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1851 **KNOX NURSERIES** 1902

We offer the following well grown, thrifty stock for Spring:
Apple, 2-year and 3-year-old. Large stock of Ben Davis.
Cherry, 1-year and 2-year.
Keifer Pears, 2-year.
Peach trees. A few yet on hand.
American Arbor Vitae, 3 feet. A bargain.
Also some Y. Imperial and Jonathan cions and some No. 2 Apple seedlings.
We always carry a general line of first class stock and shall be pleased to correspond with anyone wanting anything in our line.

Vincennes, Indiana **H. M. SIMPSON & SONS**

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Extra Choice Fruit and Ornamental Trees, Small Fruits, Roses, Shrubs, Vines, Etc. Superb Stock; must be sold quick. It will pay you to get our prices.

ALPHA NURSERY CO., Alpha, Illinois

FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO., Box 125 Winchester, Indiana, U. S. A.

Good Books for Farmers

Under this head one will naturally expect to find mention of books devoted to agricultural and horticultural topics. And such are found here, from time to time, but believing that the farmer and his family need a "balanced ration" we desire at this time to call attention to at least two new books which are among the most popular of all the latter-day publications. They are "Richard Carvel" and "The Crisis," by Winston Churchill. These books are not only very interesting, from a literary standpoint, but have a peculiar interest for people living in this section of country, for Mr. Churchill is a Missourian, having been born at St. Louis. He now lives in Vermont, and has been appointed a member of the commission from that state to the St. Louis World's Fair in 1903.

"Richard Carvel" is a tale of Revolutionary days, dealing with conditions as they existed in this country, particularly in Maryland, before the breaking out of the war. There is, of course, more or less politics in the book, and many historical characters are introduced, as Washington, John Paul Jones and others. But through the entire book is a delightful story, using the historical events of the time as a sort of framework for the structure. The characters are, in the main, exceedingly well drawn. Many of them are delightful. If any criticism were to be offered at all it would be the details which are given of the stay of the hero, Richard Carvel, in England. Most persons, we believe, will be somewhat nauseated with the picture there drawn of conditions as they existed in England at that time—and yet there is no reason to believe that the picture is overdrawn. In fact, it is probable the portrayal is rather conservative than otherwise. The story ends well, of course, with the triumph of right, and it is with a feeling of reluctance that one realizes that the end of the book has been reached. "Richard Carvel" deserves its popularity. It is a good book, and one well worth reading.

"The Crisis," by the same author, and bound in the same style, has been even a more popular book than the first-named. And we believe it is a better book. Some have claimed the work is not so artistic from a literary standpoint, but we think there is no question that nine out of ten Western people will prefer "The Crisis." And we also believe the latter book should be read by all of our people in this section, especially those of the younger generation.

"The Crisis" is a tale, the scenes of which are laid principally in St. Louis, during the Civil War. It is always a dangerous thing to write a book which shall deal with an historical event, and to publish that book during the lifetime of many of those who participated in such event. And yet "The Crisis" is published while many of the soldiers of the War of the of the Rebellion on both sides of the conflict yet remain—and it is the most popular book of the year. This book deals with a critical period in the history of the country. The scene is laid in St. Louis, where the tide of immigration from the Northern and New England States first met the stream of immigration from Kentucky, Virginia and the older states of the South. It is a notable fact that these two classes of settlers for the great West—so different in their ways of living, etc.—first met at St. Louis, the gateway to the new West, and here the story is laid, and the difference between the two classes of citizens makes possible the tale which is so well told.

The State of Missouri was in a state of turmoil in those days. Those who lived elsewhere, where the people were all on one side or the other, cannot conceive of the conditions which existed in this state where the citizens were divided, some for the North and some for the South, where even families divided, and brother was arrayed against brother, and father against his children. There are those who have looked upon Missouri as a Southern State—and yet, says this book, notwithstanding the thousands who wore the gray, Missouri sent more soldiers into the Union army than did many of the Northern states.

There are delighted characters in "The Crisis." We who have lived here have seen all of them, or types of all of them; we can even find some of them living today in this state—there are types of Colonel Carvel in many counties of Missouri at the present time, and we hope that he may remain with us for a long time to come. There are many like Judge Whipple who are still living, but as conditions have changed since the war ended his rough edges are being made smooth in his old days. We have all seen counterparts of every woman in this book—have seen many of some of the characters. There are many Virginias yet abroad in the state, yet we should hesitate to call them "Jinny," as was the heroine in this book. And these women, by the way, add much to the attractiveness of the book—they are all pleasing in their way.

Mr. Churchill makes an ideal character of Abraham Lincoln, and in this he has done well. His picture of this great man is well drawn, and his account of the great debates between Lincoln and Douglas is most interesting. From a political standpoint, Mr. Churchill gives much credit to those German citizens of St. Louis, who saved Misouri to the Union, and whose work in bringing about conditions which caused the defeat of the rebellion has scarcely been appreciated. The book is to be commended for this tribute of praise to this class of liberty-loving Germans who fought under Siegel, and who did such effective service.

We commoned "The Crisis" to all who want to read a good hook. We especially commend it to every Missourian, and to all who love the grand old state. After having read it, there will be less bitterness on the part of one whose sympathies were with those who wore the gray, and there will be more appreciation on the part of the one who wore the blue of the honesty and and sincerity of those who wanted Missouri to follow the South out of the Union.

We commend the hook also to those of other states who have never appreciated the hardships and trials of all the people of Missouri during those terrible times.

We read "The Crisis" with much interest, and finished it with a greater feeling of pride for the state in which not only we were horn, but where our parents were born. Time works many changes, and this book "The Crisis" will help to remove the few rough spots which yet remain, we believe. It is an interesting hook, well written, and deserves the wonderful popularity which it now enjoys.

"Richard Carvel" and "The Crisis" are both published by the Macmillan Company, New York City, and sell for $1.50 each. The Western Fruit-Grower can furnish these books to those who desire them, sending them postpaid at price quoted.

Animal Breeding—By Thomas Shaw, Professor of animal industry at the University of Minnesota; 5x8 inches, illustrated, cloth, over 400 pages. Orange Judd Co., New York. Price, post-paid, $1.50.

This new book is, beyond all comparison, the most complete and comprehensive work ever published on the subject of which it treats. It is the first book of the kind ever given to the world which has systematized the subject of animal breeding. The leading laws which govern this most intricate question the author has boldly defined and authoritatively arranged. The chapters on the more involved features of the subject, as sex and the relative influence of parents, should go far toward setting at rest the wildly speculative views cherished with reference to these questions.

The 30 chapters in this book are as follows, the list giving some idea of this magnificent work, each chapter being in fact a monograph on its subject: Breeding live stock, a standard of excellence, the law that like produces like, the law of principle of variation, the law of atavism, heredity of normal, abnormal and acquired characters, heredity of disease, the law of correllation, prepotency, in-and-in breeding, line breeding, fecundity, the relative influence of parents, the influence of a previous impregnation, intro-uterine influences, influences that affect the determination of sex, nutrition, quality in live stock, the coat and influences which affect it, the influence of artificial conditions, early maturity, pedigree, animal form as an index of qualities, selection, cross breeding, improvement through grading, forming new breeds, the influence of environment, castration and spaying, mating animals.

The Western Fruit-Grower will send this book, postpaid, for $1.50.

Fruit Harvesting, Storing, Marketing—A practical guide to the picking, sorting, packing, storing, shipping and marketing of fruit. By F. A. Waugh, cloth, 250 pp., amply illustrated. Orange Judd Co., New York. Price, postpaid, $1.

This book is one which will help those growers who wish to inform themselves as to the best ways to dispose of their crops. The subject is a very important one. The subjects covered by this book are the fruit market, fruit picking, sorting and packing, the fruit package, and fruit storage, with a large appendix giving useful statistics of the fruit trade, fruit package laws, information concerning commission dealers and dealing, etc. The important subjects of the fruit package and fruit storage by refrigeration, ventilation and mechanical means, are especially well treated.

The Western Fruit-Grower will send this book, postpaid, for $1.

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In the growing of fine vegetables for home use or market QUALITY in SEEDS should be the first consideration. I have made a specialty for many years of growing SEEDS from selected stock for critical market gardeners' trade who want the best. Send for Market Gardener Price List before buying elsewhere. E. E. BURWELL, Seedsman, New Haven, Conn.

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After a very active fall trade, I still have a surplus of 10,000 two and three year Apple Trees; 50 varieties, both standard and new. Write for price list.

GINSENG Buy Plants at Headquarters and save 50 to 100 per cent. Best Book of instructions published, 10 cents. HARLAN P. KELSEY, Tremont Bldg, Boston. Farm in North Carolina Mts. Mention Fruit-Grower.

Potato Planter

It marks furrows, drops and covers the seed, all in one operation. The most scientific planter ever introduced. Address

J. R. STEITZ,
Sta. D, R. No. 13 Milwaukee, Wis.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.
PAW PAW, MICH.

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Large Stock of
Grape Vines and Blackberry Plants
Also a fine assortment of roses, 2 to 3 feet. Get our prices before buying elsewhere.

SCHOELL BROS. NAUVOO, ILL.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All adds of farms for sale, or farms wanted, which are intended for this column, will be insterted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

FRUIT FARMS.

DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm.	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres,	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres,	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6000 trees,	7 rooms	5,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,800
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

Fruit and poultry farm, 6½ acres, joins town, good building, (photos sent) home market, high prices, write quick. H. L. Luce, Inavale, Neb.

FOR SALE—A ten-acre fruit farm adjoining city of Omaha, near motor car line, very productive. Thos. A. Creigh, 552 Bee Bldg., Omaha, Neb.

Fruit and grain farm, 90 acres, fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

FOR SALE—Fruit farm of 60 acres adjoining town of Meadville, Mo. Young orchards of apple, cherry and pear; ¾ acre grapes; 1 acre strawberries; abundance of fruits. Write for full particulars. G. P. Turner, Meadville, Mo.

KANSAS FARMS, for sale in Jewell and Norton counties—the land of alfalfa, wheat, corn, beef and pork. For descriptions, price and terms address O. L. Rice, Mankato, Kan.

OKLAHOMA FRUIT, GRAIN AND STOCK FARM! 320 acres in Eastern Oklahoma, 4½ miles from railway depot. Rich soil, good community; good school and church advantages; 4500 apple trees, 2500 beginning to bear; rest 2 and 3 years set; 1,000 budded peach trees in bearing, also pear, plums, cherries, apricots, nectarines, almonds, grapes, black berries, etc. Three (3) everlasting springs; three wells; windmill and tank; two-room house; good barn; crib, etc.: 190 acres in cultivation, rest in meadow, pasture and woodland. Nursery established 7 years. Good opening for large business. Price, $6,500, if taken before March 15th, 1902. Address Olson Brothers, Perkins, Payne Co., Oklahoma.

FOR SALE—A beautiful farm of 65 acres; good (6) six-room house, large new barn, costing $500; new machinery house; large poultry house; small fruits; 1500 fine apple trees, about 400 Ben Davis 12 years old—none finer in any state; 15 acres meadow; 9 acres rye; 6 acres pasture; wells, cistern and springs. More good land can be bought cheap. One and a quarter miles to railroad station and only four miles to county seat, where there is a milk factory and other factories and a good college town. $3500 Terms to suit. Dr. G. R. White, Greenville, Ills.

FOR SALE—One Marsh I Pump for irrigation purposes, capacity 5,000 gallons per hour, and one ten-horse power upright boiler. Samuel Avery, R. F. D. No. 4, Council Bluffs, Iowa.

A Bargain——240-acre fruit and stock farm; orchard of 35 acres. Owner, John Pimm, Enon, Barber Co., Kan.

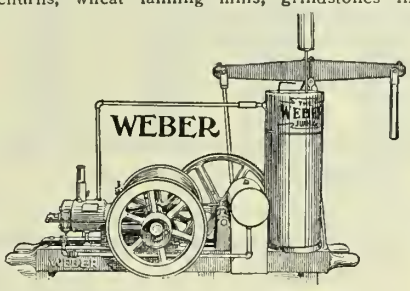
Send 10c silver and stamped envelope for recipe for POSITIVE CURE for rheumatism. Cures quickly; nothing to equal it; ingredients inexpensive; lasts for months. F. E. Hamel, Capitol ave., North, Lansing, Mich.

WRAGG TREES We Grow Them
So we can guarantee them. All the varieties known as "best" are from our nurseries. Handsome illustrated catalogue on request. THE OLD RELIABLE
..CENTRAL NURSERIES..
J. WRAGG & SONS CO., WAUKEE, IOWA.

Early Harvest
and other blackberry plants for sale at right prices.
T. B. MILLER, Springdale, Ark.

WEBER GASOLINE ENGINES AND PUMPERS.

We illustrate in this column a pumping engine recently put on the market by the Weber Gas & Gasoline Engine Co., Box 1114, Kansas City, Mo. This company has been building gas and gasoline engines for 16 years and the "Weber Junior" has a wide reputation. The "Weber Junior" has been on the market only during the past year, and its great success has caused the company to largely increase its facilities at their new plant in Sheffield. The "Weber Junior" pumping engine is specially designed for pumping, grinding, operating churns, wheat fanning mills, grindstones—in



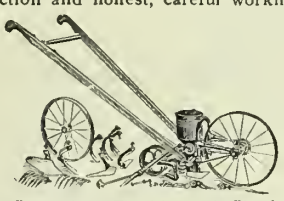
fact, all light machinery about a farm or ranch. These little engines are in use from Maine to California, and from the Northwest Territories to Yucatan.

A pleasing feature in this little engine is that it is shipped from the factory crated up with all the necessary water and gasoline tanks, pipe fittings and fixtures attached all ready to bolt down and go to work. There is no erecting for the purchaser to do, and it is unnecessary for him to employ a skilled mechanic to set the engine up. Full instructions accompany each engine for setting and operating. This engine is low in price, for they are made in great quantities. Full printed matter describing this engine will be sent upon request to the company. Every farm and every ranch should have one of these little engines. They are needed on every fruit farm to pump water for irrigating purposes. It may be that you have a windmill, but the wind fails often when water is needed most. This engine can be run in conjunction with the windmill, using the windmill when the wind blows and the engine during a calm. See the ad of Weber Gas & Gasoline Engine Co. in this issue and when you write mention the Western Fruit-Grower.

FARMERS AND GARDENERS SAVE.

If any evidence was needed that farmers are up with the times in increasing their production and decreasing labor by the use of proved mechanism, it is furnished by the statement of the makers of the Iron Age Implements for the farm and garden, concerning their output. The works, at Grenloch, N. J., have just ended their busiest season, a greater number of tools having been shipped than in any one year since the establishment of the works in 1836. A greater number of dealers are handling the Iron Age tools than ever before, and they are being sold over a wider territory for a wide variety of farming and gardening.

These implements have been imitated so much that the makers have found it necessary to warn buyers to look for the full name, Iron Age, branded on each tool they buy. This is the trade mark, and is a guarantee of steel construction and honest, careful workmanship.



No. 6. Iron Age Double and Single Wheel Hoe, Hill and Drill Seeder.

The Iron Age implements have been chiefly instrumental in overcoming the objection of gardeners to combined tools. The faults in the old-style combined tools have been overcome, and the greatest convenience, economy, lightness and durability that can be found in garden implements are now obtained in the Iron Age Seed Drills, Wheel Hoes, Cultivators, Plows and Rakes, which are made in a great variety of combinations. The larger Iron Age Implements, Horse Hoes and Cultivators, Harrows, Riding Cultivators, both fixed and pivot wheel and the Improved Robbins Planter are saving days of work and hundreds of dollars in time and material for their users every season.

For full information regarding the latest improvements and the whole line of Iron Age implements write for a copy of the free Iron Age Book for 1902, issued by the Bateman Manufacturing Company, Box 506, Grenloch, N. J.

The remarkable growth of the mail order business in recent years is largely due to the fact that the better mail order houses are scrupulously careful about always giving customers fair and honest value for their money. Notably the Marvin Smith Co., of Chicago, one of the best and most reliable houses of this kind in the world.

HOW TO BUY CARRIAGES.

One of the Largest Manufacturing Firms in the Country Sells Direct from Factory.

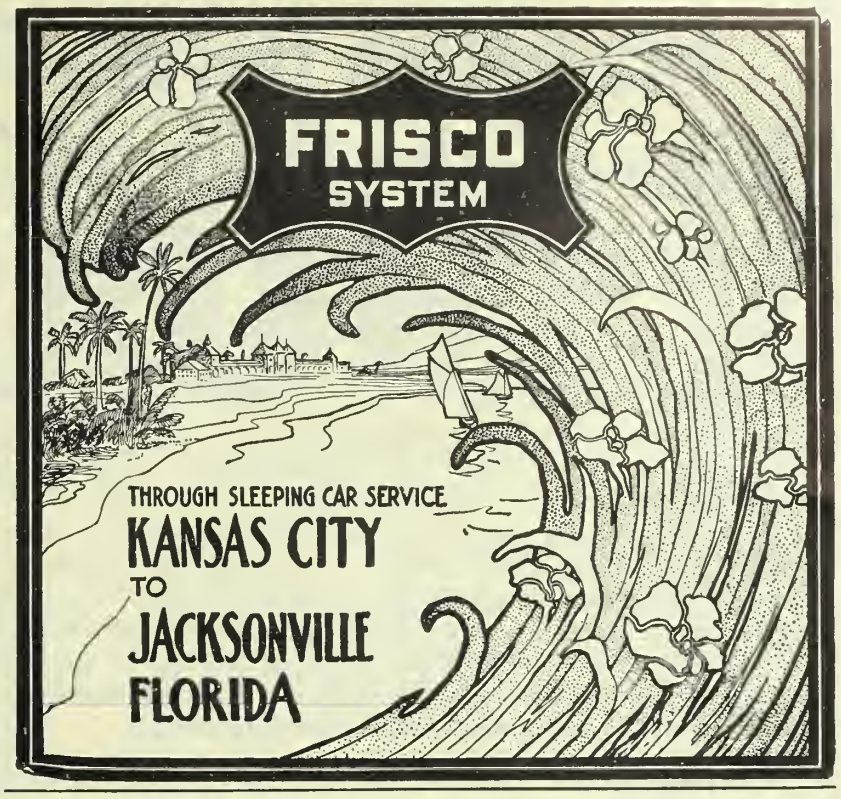
The Columbus Carriage and Harness Co., have adopted the plan of dealing direct with carriage buyers and eliminating the middleman altogether. They sell to the customer at the same rate they formerly sold to dealers, thereby saving him the intermediate profits, and in addition gives him a wider range of selection.

Since the adoption of this policy by the Columbus Carriage Company the business has increased rapidly and they are now the undoubted leaders of their class in the country. The remarkable increase in their trade in the West has made necessary the starting of a western repository at St. Louis, from which western shipments are made.

One of the distinguishing features of the relations between the Columbus Carriage Co. is the liberal manner in which the company deals with their customers. Each carriage is sent to the customer with the definite understanding that if it is not in every way satisfactory, it can be returned to the factory and the purchase money will be returned and no freight charges made either way.

This company also supplies harness, robes, and other horse accessories at wholesale prices and on the same terms as the carriage sales are made they can be returned at the maker's expense if not entirely satisfactory.

The high quality of the Columbus Carriage goods has been secured through the care in which the raw materials are selected. Every



piece of hickory and other wood that goes into a Columbus Carriage company vehicle is thoroughly tested before it is used. Every bolt and bar must stand the most severe strains before it becomes a part of the finished product. Great care is taken with the hides, each piece of leather being cured by skilled workmen and finished by the best modern processes.

Any one interested in the carriage question will find it to his advantage to write for a catalogue and study its prices. The money that can be saved in this way is considerable, and should not be overlooked when a purchase of this kind is contemplated. Address The Columbus Carriage Co., Columbus, O., and mention the Western Fruit-Grower.

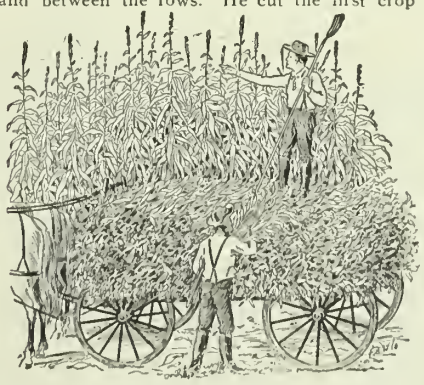
ALMOST A LIFETIME.

If one were to count the manufacturers who have been in business continuously for a generation they would be found comparatively few in number, and yet among them would be that old and well known house, the Elkhart Carriage and Harness Manufacturing Company of Elkhart, Ind., whose ad appears in this issue. This concern has been in business for twenty-nine years and during all that time has been selling direct to the consumer at lower prices than many factories charge dealers. The great saving effected by dealing with this advertiser is at once apparent. Their line of vehicles and harness is larger than ever. It embraces many patterns shown at the Pan-American Exposition, where the Elkhart people not only exhibited against some factories noted for their high prices, but carried off honors, too. Their new catalogue presents the complete line and a copy will be sent free to any one who mentions this paper in writing. Address Elkhart Carriage and Harness Manufacturing Company, Elkhart, Ind.

PENCILARIA.

The past year has proved the necessity of farmers paying more attention to fodder plants, and the new plant called "Pencilaria," which was introduced last season, has attracted great attention, and all who have tried it unite in pronouncing it the most wonderfully production plant ever tried.

One of the most noted farmers in the United States who stands high as a writer for the agricultural press states that he made a careful test, sowing the seed on the 13th of May in drills eighteen inches apart. It looked like grass when it first came up, but he cultivated it at the end of twelve days, and it then grew so rapidly that it smothered out the weeds in and between the rows. He cut the first crop



on July 1st, forty-five days after sowing the field. It was then seven feet high and weighed green 30 tons per acre, and, when dry, made 6½ tons of hay per acre. The second growth was cut on August 14th, when the plants were 9 feet high and the crop weighed 55 tons per acre green, and 8 tons per acre dry. The third cutting was made October 1st. It weighed 10 tons green and 1½ tons dry, thus making a total crop of 95 tons per acre of green fodder and when dry made 16 tons of hay.

Knowing that many of our readers would be interested in this new plant, we have arranged with the Iowa Seed Co., of Des Moines, Ia., to send a sample, sufficient to plant a row 100 feet long, free to any of our readers who ask them for it, providing they mention this paper in their request. It costs you nothing to try, and as the supply is limited, it will pay you to write to them without delay.

SURPRISINGLY CHEAP.

Mendelssohn, Pa., Nov. 11, '01.

Heller Chemical Co., Chicago, Ill.:

Gentlemen—My order came to hand all right and am much pleased with it. I do not see how you can sell so cheap, I enclose another order, and expect soon to go out and get orders from some of my acquaintances. Yours very truly, JAMES JOHNSON.

Platt's Commercial College
Ballinger Bldg., 7th and Edmond
ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

St. Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand, Typewriting, Penmanship and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. Catalogue free. E. E. GARD, Prin., St. Joseph, Mo.

SEVEN GREAT SCHOOLS
Chillicothe Normal School
Chillicothe Commercial College
Chillicothe Shorthand College
Chillicothe Telegraph College
Chillicothe Pen-Art College
Chillicothe School of Oratory
Chillicothe Musical Conservatory
Last year's enrollment, 678. $130 pays for 48 weeks' board, tuition, room rent and use of text books.
For Free Illustrated Catalogue, address
Allen Moore, Pres., Box G, Chillicothe, Mo.

The Sugar Bowl of The West

Is in the Arkansas Valley of Colorado. All records in sugar-beet culture have been surpassed in this valley.
This is the home of the famous Rocky Ford Cantaloupe and the Big Red Apple.
Sugar Beets, Cantaloupes and fruit pay well. No other crop anywhere pays better.
The whole valley is under irrigation. Irrigation is an insurance against loss of crops through drought or flood.
There is only one way to reach this wonderful valley, and that is via

The Santa Fe

Address, W. J. BLACK, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

Black Ben Davis "King of the Orchard"

Entirely Different from Gano

Major Frank Holsinger writes us under date of Dec. 30, 1901: "I promised you yesterday to do you justice in the matter of **Black Ben** vs. **Gano.** As I told you, at first I thought them identical, but in a latter examination concluded differently. . . . . I feel positive now, with what evidence I have, that they are different. . . . "—Frank Holsinger.

If others who have been spreading the report that Black Ben Davis and Gano are the same, were as careful to **investigate** and as **honest to admit** their mistake as Maj. Holsinger many planters would be saved the disappointment of planting Gano with the idea of getting the same or as good an apple as Black Ben Davis. Gano is a good apple, but **Black Ben Davis is SUPERIOR in size, color and keeping qualities.**

Champion: Next to Black Ben Davis, the **most valuable** of all market apples—good grower, **young bearer,** good color—much better keeper than Ben Davis, and a **great drouth resister,** having stood last summer better than any other sort. **Delicious, Senator, Apple of Commerce, Jonathan** and **Grimes Golden** complete the list of **MARKET and QUALITY KINGS.** Our stock of 1 and 2-year old apple trees is the largest in the U. S., and **quality is unsurpassed.**

PEAR, Standard: Leading sorts, in-cluding Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others—**extra fine trees.**

PLUM: A full stock of all the BEST varieties, including Burbank's Climax, Sultan, Shiro, America. Gold is still **increasing** in popularity—we have most excellent reports from all over the U. S.; should be in **every** orchard.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, E'y Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce for spring; orders should be placed at once.

ELBERTA PEACH

We still have a fair supply of this most valuable of all peaches. Our stock of Elberta alone was more than 2,000,000 trees and by turning down orders from other nurseries we maintained our supply for planters' trade. We must admit that we have no surplus, and those who wish to plant the coming spring must place their orders early or be disappointed. The stock is strictly first-class in every particular.

PEACH, of all varieties, very **scarce** thruout the U. S., and nurserymen who have sold their small stocks and are unable to procure more, are advising planters to wait until next year. But we have a stock in keeping with Elberta and are **still prepared to supply planters** with all the standard varieties, notwithstanding the enormous trade of last fall from the Southern States. No need of waiting until next year to plant peach orchards—a year's time lost is never regained.

APRICOT: Sunrise and Superb, the only two varieties worth planting east of the Rocky Mountains. Also American Seedlings, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading sorts for home use and market—London Market Currant, Houghton Gooseberry and Cumberland Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

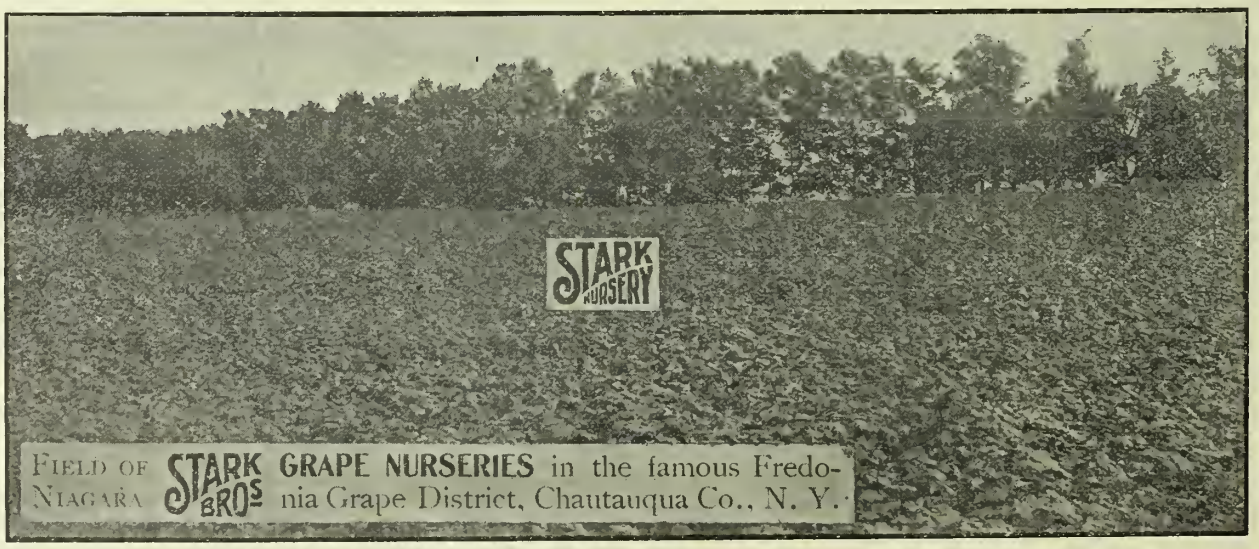
BUDDED LILACS: Superb Sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every door yard, should have them. **Perfectly hardy.**

ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

GRAPE---An Immense Stock of Superb Quality

For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines; for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivition, we are able to reduce prices materially.



FIELD OF NIAGARA STARK BRO'S GRAPE NURSERIES in the famous Fredonia Grape District, Chautauqua Co., N. Y.

We are ready to meet all competition in both quality of stock and **low prices.** Large orders for vines of nearly all varieties grown by us can be shipped from either Portland, N. Y., or Louisiana, Mo.; small assorted orders will be filled from Louisiana, but with the fine N. Y. grown vines—we having discontinued growing grape elsewhere. Leading varieties are Moore's Early, Diamond, Niagara, Worden, Concord, Brighton, Delaware, etc., all sorts of **established** value in all markets. For the home vineyard we grow the sorts of finest quality; in fact, our list embraces **the best** for all purposes, covering the entire season from early to late.

We PAY FREIGHT on Orders of $12 and Over, Box and Pack Free, Guarantee Safe Arrival, GUARANTEE SATISFACTION. Write for Stark Fruit Book, Price List, etc.—free upon request.

STARK BRO'S NURSERIES & ORCHARDS Co Louisiana, Missouri.

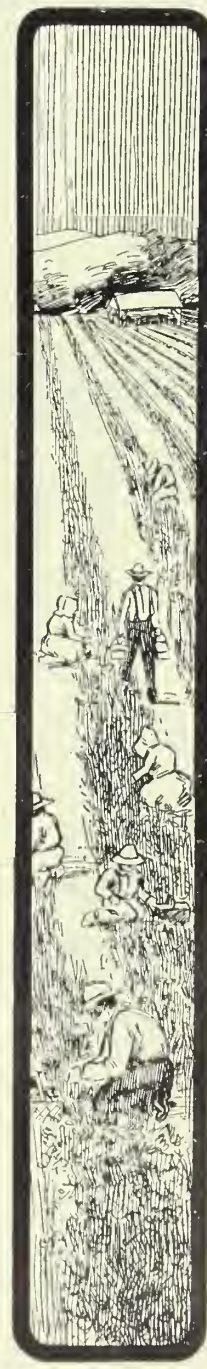
Volume Eleven MARCH 1902 Number Three

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.

ST. JOSEPH, MO.

Hort. Dept. U. of Ill.



Sprayers at Work in Orchard of President Dunlap, Illinois

The accompanying illustration shows the spraying outfit used in the orchards of H. M. Dunlap, president Illinois State Horticultural Society, near Savoy, Ill. This illustration is presented not so much to show the outfit, for it is similar to others in use all over the country, as to show the character of spray which has given best success in the orchards referred to. Note the fine mist coming from the nozzle. Behind the small tree on the left the mist from the nozzle looks like smoke, or a dense fog, and this is the fineness of the spray which gives best service, according to Mr. Dunlap. This spraying is done with a pressure of 45 to 55 pounds pressure to the square inch.

The Illinois experiment station has just issued a bulletin (No. 68) on "Important Details in Spraying," in which directions are given as to the best applications of the mixture. This bulletin advises a strong pressure and a fine mist from the nozzle, and warns the one having the work in charge against spraying until the mixture runs off the leaves or fruit. Apply the mixture until the leaves are bedewed, rather than drenched, and best results will be secured.

In this issue of the Western Fruit-Grower, J. H. Crowley of Rocky Ford, Colo., has some good advice along this line. He uses a coarser spray for the first spraying, and then a finer nozzle. Good reasons are given for this, and those interested should by all means read the article by this gentleman on this subject.

The Missing Link Apple

The Missing Link Apple

The Missing Link Apple

The Missing Link Apple

Have you ordered Missing Link? If not, why not?

Thousands have it growing, and thousands more are ordering it now. Every day brings in large numbers of orders from all over the United States and many foreign countries.

Missing Link Apple

is the most Practical Apple for Home and Market use for a Late Keeper. It is the only Apple that will keep in a common cellar until the new crop is ripe—in fact, you can have two crops in the cellar at once if you wish.

We have hundreds of agents selling it, and you might be. We are the only nursery propagating the MISSING LINK. All rights reserved, under registered trade-mark, No. 31,993.

Some unscrupulous nurserymen and their agents are purporting to sell MISSING LINK, without our authority. Ask to see their certificate of agency. Ask if they can give you a bona fide guarantee of $5.00 on each tree that they will be true to name. If they cannot do this, they are frauds, and will be prosecuted by us on proof of facts. Write us today for particulars and terms to agents.

THE MISSING LINK APPLE COMPANY, Clayton, Illinois

A Complete Line of Nursery Stock. Fine Line of Peach a Specialty.

SEED CORN THAT PAYS TO PLANT

THREE BEST FIELD VARIETIES IN EXISTENCE

"PRIDE OF NISHNA" a golden yellow, 16 to 24 rows, deep grain, medium small cob, maturing safely and soundly in 90 to 100 days. "IOWA SILVER MINE" strictly white, with white cob, the full counterpart of "Pride of Nishna" in every respect. "IMPERIAL WHITE," red cob, one of the surest and best croppers in existence, especially adapted to thi nsoil and unfavorable conditions, is robust and vigorous to a remarkable degree.

All our seed is carefully sorted, selected, and nothing but largest, best and most vigorous ears used for seed; butt and tip ends taken off before shelling and nothing used for seed except largest, best and most uniform grains. PRICE—$1.75 per bu; 10 bu $1.65, bags free aboard cars here. Write for FREE Catalog of all best Farm and Garden Seeds.

Address, J. R. RATEKIN & SON, SHENANDOAH, IOWA.

High-Class Nursery Stock

We offer to the trade this year a fine lot of trees of all kinds, small fruits, ornamentals, etc. Our stock is unusually fine, and unaffected by past drouth, as we had abundance of rain up to middle of July, and never a longer period than week or two without a nice refreshing shower, which kept our stock in thrifty condition. From the latter part of August rain has been abundant here, hence our stock is superior to that grown in localities where drouth prevailed to a damaging extent. Our handsomely illustrated catalogue and fruit manual free to all who apply.

Prices Are Right. Satisfaction Guaranteed in Every Way.

The Humboldt Nurseries, Humboldt, Neb.

Tobacco Dust

FOR FRUIT TREES

Also Pure Bone Fertilizers, "Anchor Brand." Pend for our free circulars.

The A. B. Mayer Mfg. Co., St. Louis, Mo.

Established 1863 1022 North Twelfth Street

Got a Dollar?

Invest it in our choice FRUIT TREES, SHRUBS OR VINES.—Ours will grow. They are well rooted, healthy and true to name. Send a trial order today. Due bill for 25c and Catalogue in German or English free.

25 Grafted Apple Trees for $1
25 Budded Peach Trees for $1
40 Concord Grape Vines f r $1

We pay freight on $10 orders.

Trees

FAIRBURY NURSERIES, Box I, Fairbury, Neb.

ORCHARD COVER CROPS.

Before the Connecticut Horticultural Society Prof. Powell of the Department of Agriculture favored the planting of cover crops in apple orchards. Among the non-leguminous plants suited to orchard use were mentioned corn, buckwheat, cow-horn turnips and rape. The growing of these crops does not add fertility to the soil, but they furnish a great quantity of vegetable matter, and are of value in clearing out pernicious weeds. Mr. Powell's idea of a perfect cover crop is one that can be sown late, after the season for cultivation is over, one that will form a thick covering over the entire surface of the orchard, and one not killed by slight frosts, so that it may continue to grow during the fall and early winter. Cow peas and soy beans, which go down with the first frost, are therefore not ideal cover crops. Crimson clover, where it succeeds, and hairy vetch, for more severe climates, are recommended where a leguminous plant is required. The greatly increased ability of soils where successive crops of such plants have been turned under, to hold water and withstand severe drouth, was one of the many strong points presented favoring the use of such plants.

THE ROYAL TRAIN.

The tour through the United States of Prince Henry of Prussia was made in a train containing examples of the highest art of the car builder. The two compartment sleeping cars, "Iowa" and "Ohio" were picked out from the equipment of roads covering the entire country as being the most luxurious and comfortable cars now in operation. They are part of the new "Great Western Limited" running every night between Chicago, St. Paul and Minneapolis via Chicago Great Western Railway.

The American Poultry Journal of Chicago, celebrated its thirty-third anniversary with its January number, containing over one hundred pages. The commencement of its thirty-third volume is announced with a new cover and contains, as frontispiece, Franklane L. Sewell's latest and grandest work—a colored illustration of a pair of Silver Pencilled Wyandottes. The American is making an exceptionally strong campaign for subscriptions, and offers prizes of over $400.00, including $200.00 cash prizes, to the agents who send in the largest list of subscriptions. They will send, upon request, a sample copy, containing the colord illustration and also will send instruction to agents.

GOOD PRUNING SHEARS.

During the past month we have sent out many pairs of the Levin Pruning Shears, advertised elsewhere in this issue, and have yet to receive a word of complaint. A. S. Perry, Yukon, Okla., says: "They are the 'powerfulest' shears made."

Order a pair at once. They are guaranteed by the manufacturer and by us. The price includes postage.

Oklahoma will have a fruit exhibit at the St. Louis World's Fair, the horticultural society of that territory having appointed a committee to look after same. The summer meeting of the society will be held at Shawnee.

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I sometimes fail, but only when the trouble is organic—like cancer—causing a damage beyond repair. Such conditions are rare. My records show that 39 out of 40 who get those six bottles pay for them. Yet no druggist accepts a penny where the patient states that the treatment failed.

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THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.
ST. JOSEPH, MO.

SPRAYING FOR THE SECOND BROOD OF CODLING MOTH

By Prof. J. W. Lloyd

IN the January issue of the Western Fruit-Grower was presented a very able paper on spraying apples to prevent injury by the codling moth. It will be remembered that the article was directed solely to destroying the first brood, with the idea that if the first one was completely destroyed there would be no subsequent broods. And of course this is true. But, of course, it is impossible to destroy all of the first brood, and the second brood is left to prey upon the apple crop. This second brood is much harder to control than the first one, for many reasons, but Prof. Lloyd of the University of Illinois conducted some work along this line last season, and his report is submitted herewith, in the hope that it will help orchardists who notice, late in the season, that their apples are bein gattacked by the larvae of the codling moth. Last season the late broods of codling moths were very destructive in Missouri, and this paper will be of much interest to those orchardists who suffered loss. Prof. Lloyd says:

In going through the orchards of the Experiment Station on the 2d of August, it was observed that the second brood of the codling moth were entering the late apples in quite large numbers, and it was thought best to make a few observations upon the habits of the worms and to test the efficiency of a poisonous spray applied at this time.

On August 3 five trees, one each of Grimes' Golden, Winesap, Ben Davis, Longfield and Snow, were sprayed with paris green used at the rate of one-fourth pound to fifty gallons. Particular care was taken to apply the spray, so far as possible, to the entire surface of every apple. On August 10 a second application of the same material was made with equal thoroughness. Five other trees, one each of the same varieties, were selected to serve as chicks.

An examination of all the fallen apples gathered from under the unsprayed Longfield tree August 16th, and from under the unsprayed Grimes tree August 19th, showed that, of the 457 second brood worms which had entered these apples, 77.25 per cent at the calyx end, 22.75 per cent at other points. Could any of these worms have been prevented from entering the apples by the application of a spray before they were hatched?

Small quantities of the material forced into the clyx cavities of the apple in spraying for the first brood worms were found to be still present in the case of some of the apples at the time the second brood appeared. If paris green, or other poisonous spraying material, will remain in the apple and retain its deadly properties until late in the summer it wih be possible, by very thorough spraying for the first brood, to kill those of the second brood which attempted to enter at the calyx end, apples which had not been attacked by worms of the first brood at the same point. The efficiency of this poison, at the time and place specified, has not, so far as I know, been determined; nor do we know in how large proportion of the apples sprayed in the spring poison could be found in mid-summer. It is probable that this proportion would depend very largely upon the thoroughness with which the spray was applied.

Since the apples are hanging downward at the time the second brood worms appeared, it ought not to be a difficult matter to apply sufficient poison to the cavity about the stem to kill all worms attempting to enter at that point.

It will be more difficult to prevent worms from entering the sides of the apples that it will be to prevent them from entering close to the stem, since it is extremely difficult to secure a uniform distribution of the particles of poison over the entire surface of the apples. I am not prepared to state how many, if any, worms attempting to enter the sides of the apples are killed by a spray applied before they are hatched, but, if it is possible to apply a fungicide with sufficient thoroughness to prevent the development of apple scab from spores that may lodge upon the apples at any point, it seems but reasonable to believe that it might be possible to apply an insecticide with sufficient thoroughness to kill at least a part of the worms attempting to enter the sides of the apples.

Can a worm be killed after entering the side of an apple? After entering the apple, the little worm feeds for a few days close to the surface, usually eating in a circle about the point of entrance just beneath the skin of the apple, sometimes eating holes through the skin. A deposit of excrement invariably covers the point of entrance, and increases in size as the worm continues to work. The skin, beneath which the flesh of the apple has been eaten away, dries up, turns brownish, and sinks slightly below the level of the undisturbed surrounding skin. This makes a saucer shaped depression with a hole in the middle. The edges of the original hole made by the worm entering, either shrivel or are eaten away, so that there is an opening of considerable size communicating from the outside to the cavity in which the worm is at work. The accumulation of exerement, however, usually extends considerably beyond the edges of this opening.

When the apple is sprayed, a drop of the liquid nearly always lodges on or in the accumulation of excrement, since the particles of the latter make up a porous mass with a rough surface, which is sure to catch and hold some of the liquid. After the liquid has evaporated from a sprayed apple many particles of poison were found on the skin close about the outer edge of the accumulation of excrement, and lodged among the particles on the top and sides of the mass. Since the particles of excrement of a young worm a few days old are from .1 millimeter to .165 millimeter long and from .0666 millimeter to .0825 millimeter wide, while the particles of paris green are only .01 to.02 millimeter in diameter, there would seem to be plenty of room for the particles of paris green to pass with the water through the space between the particles of exerement into the cavity occupied by the worm. It seems evident that this passage of the poison into the cavity could easily take place if the particles of excrement were hard, smooth and separate. Since, however, they are rather soft (when fresh), have a rough surface, and are held together like beads by a thread of membrane, it would seem that the passage of the particles of paris green through the mass might be consideraly hindered.

There is, however, a way in which the paris green might possibly reach the worm, even if it is not carried in the water throgh the mass of excrement. As long as the worm feeds near the surface it apparently continues to throw its excrement out through the entrance hole. In throwing out new exerement, the worm would necessarily move or slightly disturb a part of the mass already covering the hole. This movement of the mass or disturbance of its particles would have a tendency to cause the fine, heavy particles of paris green to be shaken down to a lower level, and some of them might eventually pass or be drawn through the hole into the cavity where the worm is feeding.

And there is still another way in which the worm might be reached by the poison. As has been previously stated, the worms sometimes eat holes through the skin of the apple while feeding just beneath the surface. If a worm ate a hole through the skin near the edge of the mass of excrement, where, as the examination shows, poison is likely to lodge, it would be likely to eat of the poison.

Although it is impossible to state just how the poison reaches the worm, nevertheless the following observations show it is possible in some cases at least, to kill the worm by the application of a poisonous spray very soon after it has entered the apple.

August 12, fourteen sprayed apples on hand in the laboratory were examined to determine the condition of the worms, most of which had evidently been in the apples some days before the spraying was done. The worms were carefully sought and removed under a dissecting microscope, and were then placed on a glass slide and examined under a compound miscrocope. If they showed no signs of life, they were designated "dead"; if they showed signs of activity, such as moving of the jaws, but seemed weak and sick, they were designated "nearly dead"; if they were lively they were designated "healthy." The fourteen apples had been entered by nineteen worms. Four were dead, three nearly dead, eleven healthy, and one could not be found. In the examination made on this day no record was kept as to the number of healthy worms that had gone to the interior of the apple, but many of them had done so.

Since it seemed probable that some of these worms had gone to the interior befor the spray was applied, it was thought best to test the matter further, and especially to determine the effect of the spray upon worms which had entered the apples very recently. Accordingly twenty-one apples were selected from the orchard August 12th, and sprayed in the laboratory by means of an atomizer charged with paris green and water at the rate of one pound to 50 gallons. The mixture was purosely made much stronger than it would be used in orchard operations. The apples were divided into three lots of seven each. In lot 1, the apples had been very recently entered by worms; in lot 2, the worms had entered a little earlier, while in lot 3 they had entered still earlier, some of them, perhaps, having gone to the interior before the spray was applied. These apples were carefully examined three days after the spray was applied.

The conditions of the worm at that time is given in the following table:

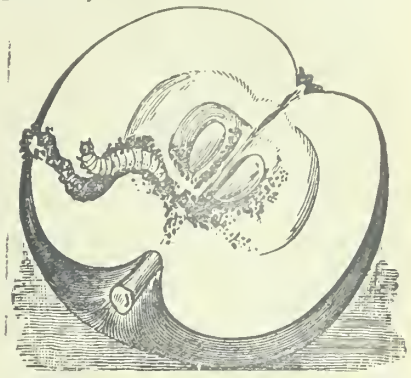
TABLE 1.—CONDITION OF WORMS IN SPRAYED APPLES.

Lots—	1.	2.	3.	Tot.
Dead	5	3	4	12
Nearly dead	0	1	0	1
Healthy (near surface)	1	1	1	3
Gone to the interior	0	1	2	3
Not found	1	2	0	3
Total	7	8	7	22

In all cases the worms which had gone to the interior were apparently

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



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healthy. One of the dead worms in lot 3 had evidently been killed by a fungus disease, rather than by the spray, so that the total unmber of worms evidently killed by the spray would be 11 or .50 per cent of the worms attacking the apples. The advantage of spraying very soon after the worms had entered is clearly shown by the fact that five out of seven worms were killed in lot 1, while only three out of eight and seven respectively were killed in each of the other lots.

In order to further test this matter and to make sure that it was the paris green which caused the death of the worms, three lots of apples were again selected and sprayed in the laboratory, and the same number in a similar condition in each case left unsprayed as checks.

It was difficult to find apples at this time which had been very recently entered by worms, so that the number of apples in lots 1 and 2 were very small. The relative ages of the worms in the various lots of apples were the same

CONDITION OF WORMS IN SPRAYED AND UNSPRAYED APPLES. TABLE 2.

	Lot One.		Lot Two.		Lot Three.		Summary.	
	Spr.	Chks.	Spr.	Chks.	Spr.	Chks.	Spr.	Chks.
Dead	2	0	1	0	2	0	5	0
Nearly Dead	0	0	1	0	2	0	3	0
Healthy (near surface)	1	1	1	0	2	0	4	1
Gone to interior	0	2	1		1	6	2	12
Killed by parasites	0	0	0	0	0	1	0	1
Total	3	3	4	4	7	7	14	14

as in the previous experiment. The spraying was done August 16, and the examination made three days later. This examination showed the condition of the worms to be indicated in table 2.

Of the fourteen worms in the unsprayed apples, every one, except the one killed by parasites, was apparently healthy, while of the fourteen worms in the sprayed only six were in a like condition. The figures would seem to indicate also considerable difference in the vigor of the apparently healthy worms in the sprayed and unsprayed fruits. It is certainly significant that twelve of the worms in the unsprayed apples had gone to the interest, while only two of the sprayed fruit had started in that direction. It is possible that the worms in sprayed fruit designated as "healthy" would have shown signs of weakness if the examination had been deferred for a

HAND PICKED APPLES FROM SPRAYED AND UNSPRAYED TREES. TABLE 3.

	Grimes.		Winesap.		Ben Davis.		Snow.	
	Spr.	Chks.	Spr.	Chks.	Spr.	Chks.	Spr.	Chks.
Percentage attacked by second brood worms	37.14	55.21	39.99	50.14	55.40	68.72	41.11	33.74
Percentage of apples attacked by second brood worms, in which the worms were stopped before going to interior	47.68	16.98	67.71	15.79	65.93	7.27	62.69	19.11

day or two. The poison evidently acts somewhat slowly.

The above recorded laborator experiments seem to prove conclusively that it is possible to kill at least a part of the second brood worms entering the sides of the apples by the application of a poisonous spray after the worms have gained an entrance into the fruit.

The results of the experiments in the orchard were not as conclusive as they might have been had greater precaution been taken to guard against the injury to the trees and fruit by the spray itself. The amount of material applied to each of the trees was much greater than that usually applied in regular orchard practice; and, furthermore, the paris green was not tested before being

AVERAGE FOR THE FOUR VARIETIES. TABLE 4.

	Sprayed.	Check.	Gain due to Spray.
Percentage attacked by second brood worms	43.41	51.95	8.54
Percentage of the apples attacked by second brood worms, in which the worms were stopped before going to interior	61.00	14.79	46.21

used, nor was any lime added to the mixture. As long as no rain occurred, no injury to the trees was apparent. After repeated showers, the leaves of the sprayed trees showed signs of injury and the apples began to drop very badly. Before the rain nearly all the apple droppings from both sprayed and unsprayed trees showed worm injuries. During the twelve days occurring just after the injury to the trees became apparent, about 50 per cent of the apples dropping from the sprayed trees were uninjured by worms, while less than 2 per cent of those dropping from the unsprayed trees were uninjured. Some varieties showed the injury worse than others. During those twelve days nearly five bushels of apples dropped from the sprayed winesap tree, and 90 per cent of them were uninjured by worms.

In spite of the excessive dropping for a few days the average percentage of the whole crop (the "whole crop" included all fallen apples gathered after August 15 and all hand picked fruit)' which fell between August 15 and the time the apples were picked was less for the sprayed than for the unsprayed trees. In other words, the combined loss by dropping from sprayed trees due to worms and to injury by the spray was less than the loss by dropping from the unsprayed trees.

An examination of the hand-picked apples from the sprayed and the unsprayed trees brought some interesting facts regarding the efficiency of the spray. The apples were carefully sorted, and from one hundred to one hundred and fifty from each tree were cut open in order to determine the exact nature of the injuries caused by worms. From the data thus obtained, the percentage given in table 3 was calculated.

A summary of table 3, giving the average for the four varieties and the average gain in favor of the sprayed fruit, is given in table 4.

These tables show that with the exception of one variety (the Snow) a smaller percentage of the apples from sprayed trees were injured by worms than from the unsprayed trees, and the average percentage of the injured fruit for the four varieties (including the Snow) was smaller for the sprayed trees than for the unsprayed. The tables further show that a very much larger percentage of the worms attacking the apples were stopped before going to the interior in the case of apples from from the sprayed trees.

In the face of these facts two conclusions seem inevitable; namely: (1) The spray protected some of the apples from attack, i. e., it killed the worms before they entered. (2) The spray killed many worms after they had entered the apples, and thus prevented them from going to the interior.

The apples in which the worms were stopped before going to the interior were not, as a rule, seriously injured, and it is probable that such apples would keep fairly well in cold storage. In some cases especially where the worms had apparently been killed very soon after entering, the wounds seemed nearly healed over and did not look as if they would be easily subjject to rot. In other cases, a small spot of dry rot surrounded the wound. There seemed also to be some difference in the extent of injury in the different varieties.

While an apple showing blemish where a worm has been killed is not a fit specimen to be packed in a barrel of first class fruit, nevertheless it is true that if no worse blemished apples ever found their way into a barrel of second grade fruit, that grade would average better quality than it does at present.

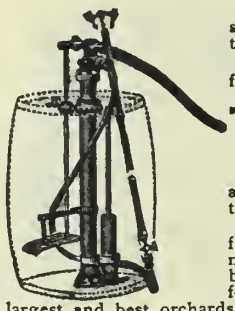
The experiment in both the laboratory and the orchard show that it is possible to kill many of the second brood larvae of the codling moth by means of a poisonious spray. Further experiments are needed to determine what material will be best to use and at what strength it may be applied without danger of injuring the foliage or fruit. It is claimed that arsenate of lead will not injure foliage no matter how strong the mixture is used, and it is probable that this material will be tested at the station next season.

JOHN W. LLOYD.
University of Illinois.

Note.

The Longfield trees matured very few apples, and no record was kept regarding the worminess of those few. Therefore in table 3 and 4 only four varieties are considered.

SPRAY OR SURRENDER



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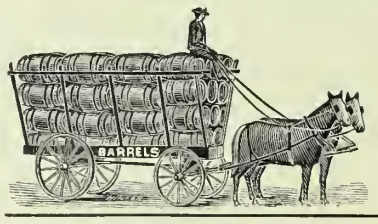

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Twelve varieties of sprayers. Write for our booklet treating of all kinds of diseases and insects. Sent free.
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Henion & Hubbell, Chicago, Ills.

M. Jones, Jamesport, Mo., says he believes a fruit inspector should be appointed for every county, whose duty it shall be to inspect all trees sent in to the county. He would not only keep out all diseased stock, but would see that each purchaser got the grade of trees ordered. Mr. Jones believes in propagating trees from only bearing trees, claiming the young trees bear earlier and are better in every way. He now propagates much of his own stock. He wants to know where to get good spraying ingredients, and in answer to his question and those of others, we will say that the Missouri Valley Seed Company, St. Joseph, Mo., and Whitelaw Bros., St. Louis, Mo., both have ads in this issue, and are prepared to furnish pure chemicals for spraying purposes.

Story of an Orchard

Occasionally we hear complaint that the articles we have published on the subject of spraying, are written by those who do not have to count the cost when doing the work. This is true with the experiment stations, of course, but we have had the articles from the stations because of the fact that because they do not have to count the cost, they can experiment and find out just the best methods of fighting insect and fungous pests.

However, we have some articles direct from the orchard in this issue—they are from intensely practical men, men who are down on the "bread-and-butter level," as Senator Taylor would say. There are a number of such articles in this issue, but none more interesting or helpful than this story of the orchard of J. S. Hamm, Platte County, Mo. Mr. Hamm gives the history of his orchard and his methods of work as follows:

"Twelve years ago last fall, I secured about 1,000 seedlings from a nursery and grafted them, cutting scions from healthy, bearing trees. The grafts were set in my garden to prevent the rabbits from getting to them, and were well cultivated and planted in the orchard when two years old, in rows thirty feet apart each way. I raised several crops of wheat, corn, oats and clover, but principally corn, between the trees, but was careful at all times to keep the soil hoed about the trees. I have 400 Ben Davis trees in one block. In 1900 they bore 142 barrels of marketable apples and 65 barrels of culls. They were sprayed once with Bordeaux mixture and London purple, four ounces to fifty gallons of water, and twice with London purple solution alone. Many canker worms were on the trees in the spring, and the fruit showed the work of coding moth to some extent.

"Early in the spring of 1901, I banded my trees with screen wire, and sprayed with Bordeaux mixture and London purple when the buds began to swell. The second spraying was given when the blossoms began to fall, with paris green and Bordeaux mixture, four ounces of the former to fifty gallons. About this time I noticed the canker worms had commenced to work, so I increased the quantity of Paris green to six ounces to fifty gallons in the third spray, which was applied about ten days after the second. This third spraying was hardly finished when a shower of rain came, and being a little uneasy lest it had washed off the greater portion of the spray mixture, I went over the whole lot a few days later, using six ounces of Paris green, with lime, to fifty gallons of water, omitting the Bordeaux mixture.

"My Jonathan trees had blossomed full in 1900, but cast all the bloom from scab or blight, which fact induced me to spray them in 1901 before foliage put out, using Bordeaux mixture. The result was satisfactory, as most trees set too full, as did the Ben Davis trees. During July, I thinned the fruit on the Ben Davis trees by hand, pulling off all defective fruits and also some from limbs which were too full, to prevent the tree from breaking. Notwithstanding this precaution, I lost many limbs from breaking.

"Now for results. Jonathan trees had no fruit in 1900; in 1901 they were so full that much of the fruit was undersize and unmarketable. Ben Davis trees in 1900 as noted in fore part of this article; in 1901 they were simply the admiration of everyone who saw the orchard. Men and women came from miles away to see the trees, and one lady whose father had spent the greater portion of his life as a pioneer nurseryman, walked a mile to visit the orchard, and then said she had often seen 'trees and apples, but never before had seen apples and trees.'

"Several apple buyers visited me and wanted me to put a price, but would make me no offer direct. This appreciation on the part of the others encouraged me to place a higher valuation on my crop, and I finally sold the entire crop to W. D. Graham of Ohio, for $2.50 per barrel, straight, nothing to be thrown out except soft rots, which amounted to about ten or twelve barrels in the orchard. He paid me for 1,244 barrels of marketable apples, and said when he settled that he had been buying apples for thirty-nine years, and in all that time he had never been better pleased with a deal; that he had paid me from 50 to 75 cents more per barrel than he had been paying that season.

"The 400 Ben Davis trees, eight acres, brought me $266 per acre. Who can beat this for ten summer's growth? Two years ago I was offered $1,000 for ten acres of my farm, including this eight acres of Ben Davis apple trees, and came near accepting the offer. Think how the other fellow missed it. In harvesting this apple crop the buyer graded the fruit, and at one station he packed 41 barrels of apples—40 No. 1, one barrel No. 2, and half a bushel of culls. This crop and my experience proves to me that clean culture and thorough spraying pays."

Now, that is a chapter of one man's actual experience. Is there anything theoretical about that? We would be pleased to know, of course, how much of the success of Mr. Hamm's orchard is due to the fact that his trees were propagated from bearing orchard trees. This is an interesting subject.

Spraying for Canker Worms

B. F. Stuart, Buchanan County, Mo., in sending his renewal subscription for three years, also sends some notes of interest to orchardists. "I have had perfect success in controlling the canker worm two seasons in succession," says Mr. Stuart. "I used about half an ordinary tumblerful of Paris green to fifty gallons of water, adding enough fresh lime to make the mixture milky. Have used double this amount of Paris green in extreme cases, but would not advise inexperienced persons to try it.

"I prefer Paris green as a poison, as it contains enough copper sulphate to answer, when used as a spray, to prevent all the rot and scab we have in our orchards. Besides, as is well known, it is as good as any poison for biting insects, such as canker worm, codling moth, and a host of leaf and bud-eating insects. Trees treated as we have suggested just at the time the canker worms begin to hatch were entirely freed of the pests, and they produced a good crop of apples, the foliage was perfectly healthy and was noticeable for its rich, dark green color. I believe that arsenic and lime, when compounded, are a good stimulant to the tree and its fruit.

"A great many people fail in getting paying crops from their orchards because of their disregard of the essentials of a productive orchard: Location,, elevation, character and condition of soil, proper fertilization, cultivation, drainage, and class and variety of trees, their condition and treatment, together with the maintenance of soil fertility, and last, but not least, their failure to protect their trees from insect and fungous pests. After a crop is grown it must be carefully handled and honestly packed. No grower can afford to be dishonest in representing his pack. I have seen apples cheap, but cannot recall a time when strictly first-class fruit would not bring a good price.

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Fighting the Codling Moth in Colorado

The codling moth is the one enemy of the apple which is hard to fight, and beleiving that the orchardists of the West will make a harder fight on it this season than ever before, the Westrn Fruit-Grower wishes to present all the information obtainable before the season for spraying opens. This month we have Prof. Lloyd's paper on "Spraying for Late Broods of Codling Mith," and several articles from practical men. Herewith we prsent some notes from J. H. Crowley, Rocky Ford, Colo., who says he fears Prof. Steadman's article in our issue of January will prevent growers from spraying at all, unless they can spray as many as four times. Mr. Crowley believes four sprayings are best, but also is of the opinion that the first thorough spraying, just after the blossoms fall, is helpful, even if there are no other sprayings.

Mr. Crowley, after describing the codling moth and its work, with which our readers should all be familiar, says:

"I have used four of the Deming Co.'s No. 550 pumps, using two lines of hose, a fork and two nozzles on each, or four nozzles to each pump. When one barrel is empty we simply change hose to the other, put in the poison and go ahead. I have used in the past paris green, one-third pound, to one barrel, using four to six pounds of lime. I also used one pound bluestone per barrel last year. We sprayed most of the orchard once, part twice, all inside of ten days from falling of the flowers.

"Now I want to give you my observations. Just as soon as the flowers are pollenized the bees quit work on them, and just then is the best time to spray. My experience is you get no poison into the bunch of stamens, perhaps some on the ends, but get the calyx leaf; it catches and holds the spray while the stamens or petals are apparently oily and repel the mixture.

"Card of Nebraska says he had better success by using a coarse spray with lots of force. I have watched using fine, coarse, all kinds, and agree with Card. Do not use the coarsest, only medium coarse.

"Up to August I did not have two per cent of wormy apples, but during August they got bad. At picking time, October 1st, I had twenty-five per cent; most of this was done after August 1st, and they were working hard at picking time, very few going deep, but going in at the sides and out and in at another place. Some of my old pickers said we had a new worm, that it had a black head and was no longer than the codling. I at first thought so, as do my neighbors yet, but after careful study and finding that as the apple gets older and seeds get harder fewer worms go to the core, I now am satisfied this is a late brood of codling moth.

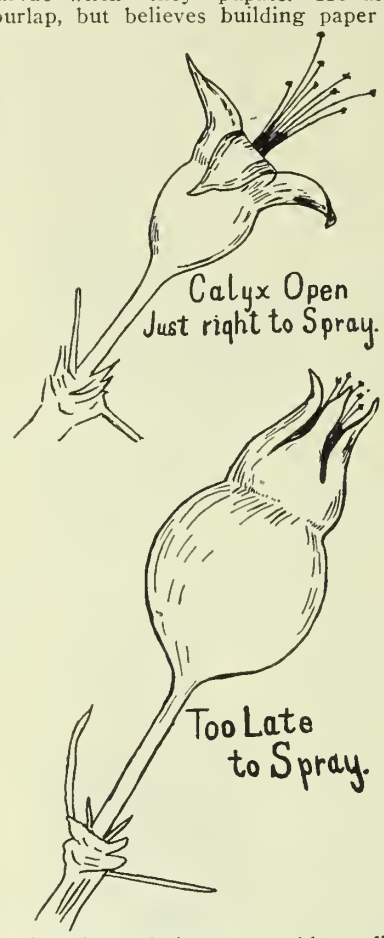
"We also use the bands and go over them every eight days until Setember 1st. We leave them on trees until winter; then wait for cold weather, they are removed and scalded. Note I say cold weather, for if mild at all when the cocoon is broken apart the worm will wake up and spin a new one.

"I have been under the impression that to spray while the caylix was open was enough. I believe I did my spraying well, with good poison, and am sure I did not have three per cent of wormy apples where they went in at the calyx this season. One of my neighbors Mr. Hunt, sprays all season; he made it pay. I visited Canon City; I found all conditions, some sprayed once, twice, and some as much as six or eight times. The best fruit was where the heavy spraying was done. My friend Colburn sprayed three times, the last in July; he had fine success; in fact did not need the bands late in the season. He also used arsenate of soda (Kedzie's solution.)

"Now in regard to how to spray. As before stated, Card's experience was for a coarse, hard spray. While Slingerland of New York and Woodworth of California advocate a fine mist, like fog or dew. They are both wrong, and again both right; for the first spraying to cover the calyx lobes use the spray as I have shown, but for any later spray for the leaves or fruit make the mist as fine as possible, and don't spray these later spraying until trees drip, for if you do it will gather in drops on the apple, and on the leaf, will run to the edges, leaving poison only in spots, where if put on fine like fog and when the tree is wet, stop, it will stick.

"I further believe that it will pay to use bluestone, one pound to fifty gallons of water, for each spraying. For two reasons: first, it sticks better, second it will spread better. I think it better for the latter than soap, and cheaper. As the apple grows it gets smoother and oily and appears to repel or cause spray to collect in drops; the bluestone or soap changes this; seems to make an affinity between them."

Mr. Crowley believes in supplementing his spraying with other precautions. He uses screens at windows of cellars in which apples are stored to prevent the codling moth from escaping. He also bands his trees early in season, to afford a hiding place for the larvae when they pupate. He used burlap, but believes building paper is



preferable, as it is less trouble to find the worms under the paper. At this season take bands off and scald, scrape off all rough bark, dig all worms out of forks, with a wire hook or slender knife, burn all weeds and brush under trees, and if weather is mild harrow around the trees.

"Woodworth of California found the worm six inches below the surface of the ground around the trees with smooth bark. Our Mr. Griffith put bands on trees last year in March; in April he found worms under them. Now, I believe these worms wintered in the ground on roots of trees; if they should pupate in the ground the moth could not get, so I feel sure the worm comes out, spins a new cocoon, and

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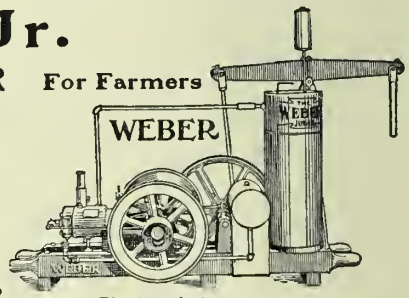
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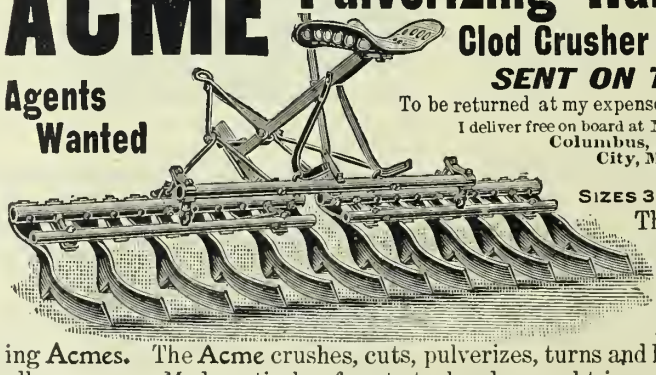
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then changes to a moth. Now, one word in regard to fallen apples. I do not believe it will pay to pick them up to destroy the worm. After picking up and cutting open hundreds of them I found the worms had left before they fell. Less than six per cent will be found in them. But there is another method I shall practice this season; I shall begin in June to pull off every apple that shows to be wormy and these will be picked up at once and either fed or run through the cider mill, or some other mill, to kill the worms."

The drawings shown were made by Mr. Crowley's daughter, and show the right time to spray first.

Trapping the Codling Moth

We do not mean by this heading the use of trap lanterns, nor do we really mean trapping the moth at all—simply placing traps to afford the larvae a place to pupate, and then to destroy them while this change is taking place. One plan is to place bands of building paper around the trees. Make the bands four to six inches wide, scrape off the rough bark so that the band will fit tight against the trunk. This band is not to prevent the ascent of the worm, as is the case where trees are banded to protect against the wingless female canker moth, but is simply to induce the worms to hide there in great numbers, where they can easily be destroyed. Put bands on early in the season, by June 1, at latest. One Colorado growers caught 336 worms under bandages on one Hyslop crab tree. From these worms 336 moths would have appeared. Allowing each female to lay 50 eggs, compute the number of worms which would have been left to destroy the apple crop.

Another trap can be made by simply hanging an old gunny sack in the fork of a tree, and the worms will pupate in the folds of the sack. This will afford a hiding place for those worms which leave the apple before it falls, and will catch any of those which pass the bands lower down on the trunk.

Another Colorado grower gives his experience in using these two forms of traps as follows: "The codling moths do not fly very far. In 1897 I had about 2,000 barrels of winter apples, and 90 per cent of of them contained worms. In 1898 I had not nearly so many apples but as many worms. In 1899 I thought I would see if something could not be done more than I had done to destroy the pest. Here is my experience: I sprayed with paris green, one pound to 200 gallons of water, first time May 31st to June 3rd, or just as soon as the blossoms had fallen; second time, June 24th to 27th. I put bands and sacks on the trees the first week in June, with sacks in the crotches. I found the first worm in an apple June 26th. I took the bands off the trees the first time July 4th to 6th, caught 200 worms from 750 trees and boiled the sacks.

"The second time I took off the bands July 15th to 17th, caught from bands 997 worms and the same number from the sacks in the crotches. The third time I took off the bands and sacks August 2d and 3rd, I caught 747 worms. The fourth time I took off the bands, August 12th to 14th, caught 213 worms and boiled the sacks from the crotches the same dates. The fifth time I took off the bands and sacks August 22d to 24th and caught 602 worms. The sixth time I took the bands off, Setember 4th to 6th, caught 2,225 worms form the bands and only found two in the crysalis state, so I am satisfied that they do not turn to millers after this date. The last week in Setember I took the bands off and found 2,315 worms, but did not take the sacks from the crotches until the last week in October. Then I took the sacks and bands off for the last time, scalded them and put them away for next season. Every time I took the sacks off I scalded them."

After Major Holsinger

In the January number of your valuable paper I notice a statement ma'e by Major Holsinger concerning peach yellows, which surprised me. That statement reads as follows: "Many nursery men claim their stock of peaches in nursery is free from yellows. Is that true? Most certainly. Why? Because the yellows is a disease that requires the trees to have grown to the bearing age before showing the disease."

Then the Major says: "Great ado is made of trees grown from seed free from the disease, etc. I have never seen a one-year-old peach that showed signs of peach yellows." Well, take the child of consumptive parents; would it prove that the little one was free from that disease because it did not show that dreaded disease at the age of three or four years?

J. H. Hale, in "Notes on Peach Culture," in the report of the pomologist of the Department of Agriculture for 1894, says: "We were entirely free from this disease for the first eight years in orchards of 6,000 trees, and now have a block of sixteen-year-old trees where never a trace of the discase has shown itself. After the eighth year the disease showed itself in the older orchards, and has since broken out in younger orchards of various ages., twice directly traceable to the nursery, as the disease developed the first year after planting."

Then the Major says: "Trees in certain districts where the yellows are known never fail to develop, no matter where the stock is grown, while in other districts trees grown in locations badly infected and shipped to districts that are immune do not show it."

Now, I do not wish to dispute what the Major says, but I will say this, that this county (Wood) is full of peach yellows, and I know of trees from fifteen to thirty years old—surrounded by yellows—that are healthy. I know of one tree that died last year aged thirty-six years. The tree stood within one-eighth mile of an orchard that was badly infected and never showed a sign of the yellows. Ten years ago I bought 500 peach trees from a nursery. I set them out and cultivated them year after year. They grew finely and were a joy to look upon, with their coal black foliage. Three years after I set these trees, I procured pits from a neighbor (whose trees had the yellows, which I knew nothing about at that time) and planted them, afterwards budding them with buds taken from the orchard just spoken of. I planted these trees by the side of the old orchard and cultivated them all together. In two years they all showed the yellows and now for four years the disease has been eating into the main orchard from those trees. I might say that property is not mine or those trees would not be standing now.

In the Rural New Yorker of January 25th, 1902, Mr. J. H. Hale, in an article entitled, "Yellows Bad As Smallpox," says: "As to the suggestion about there being no 'danger in planting an orchard with yellows pits or diseased trees,' I say strongly and emphatically don't. A tree or pit with any taint of the yellows in it will give a diseased tree and inferior fruit, and spread the contagion to nearby trees, no matter how good the cultivation and how liberal the feeding. You might just as well bring a case of smallpox into the family as to bring a case of the yellows into the peach orchard, and hope to escape the penalty."

William Taylor of the United States Department of Agriculture, says in the same paper: "The most important thing in my opinion, is to secure seed from trees that are strong, vigorous and free from disease, and then to grow them in a nursery as far from infested orchards as is practical."

Now I think best that this matter be shaken up, and sifted to the very bottom. For my part, I think there is too much criminal carelessness among nurserymen already. I recognize Major Holsinger's ability as a writer and fruit-grower, and enjoy reading his department. But surely I think he has made a mistake in this matter. If he has not, then let us find it out once for all. The truth is what we all want to know. I would like to make an offer to Major Holsinger. I will fix up a special peach tree and send it to him providing he will set it out and report developments. But I would advise him to put a barbed wire fence between the Jasper and his peach orchards.

Nor do I agree with the Major in his article on bud variation. He quotes from the pen of Grant M. Hitchings in the Rural New Yorker. I will quote from J. H. Hale, also published in Rural New Yorker, as follows: "The promiscuous cutting of buds year after year, from the nursery row, so as to propagate trees easily and cheaply, has led to a good deal of mix-up, and at the same time propagated inferior specimens of our best standard varieties. In orchards of from 10,000 to 30,000 trees of any leading standard variety, there are some trees that produce much danger and better fruit than others of the same variety, and by annually cutting buds from those best trees I believe that each variety of fruit can be greatly improved."

We could go on and quote from the pens of such horticulturists as Prof. L. H. Bailey of Cornell University, G. Harold Powell, horticulturist of Delaware experiment station; Prof. F. A. Waugh, horticulturist of Vermont experiment station; G. T. Powell, R. M. Kellogg and many other eminent horticulturists throughout the country too numerous to mention here. Mr. Hitchings says in the article which the Major quotes that he would not go to the bother to select buds or grafts from his best trees. Well, one thing is settled in our mind. If he was a nurseryman we would not go to the bother to buy any trees from him. And as far as the pedigree strawberry plants is concerned I can show you pedigree plants just the reverse from Mr. Hitchings' plants, pedigree and non-pedigree plants, side by side.

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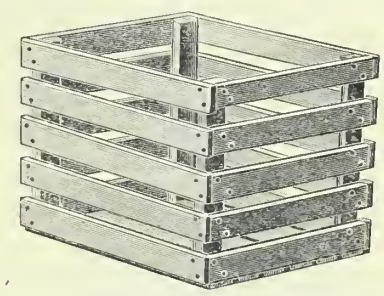

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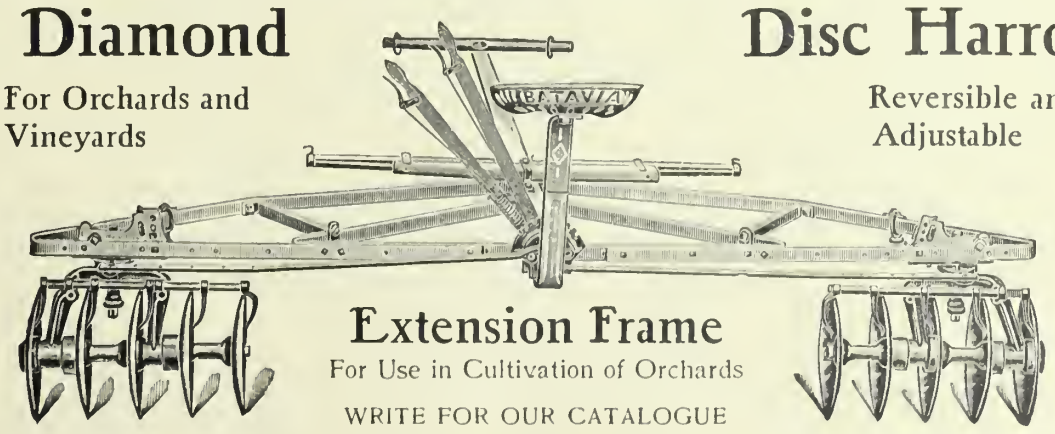

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THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

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JAMES M. IRVINE.....Managing Editor

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We wish to urge our readers to always give their complete address when writing us on any subject, no matter how many times you have written before. Unless you do this, we are unable to locate your name on our mailing list. For instance, we received a letter the other day, postmarked Denver, Colo., and across the face of a blank application for a money order was written the words, "Please discontinue for the present." Now, this letter was from one who wanted the Western Fruit-Grower discontinued to his address. But we have many subscribers in Denver, and we do not know which one sent the notice. The sender of the notice will receive this issue, for we cannot take off his name until we know who it is. Another class will say, "Change my paper to Kansas City, Mo." Now, how are we to know, from such a letter as that, where the writer formerly got his mail?. It is necessary that not only the new address be given, but the old one as well. Still another request we wish to make is that you always write your name and address plainly. It is very easy to make errors in copying the names of persons with which you are not familiar, and therefore it is very important that they be plainly written. Always remember these points when you write to any publication or firm: Always give your name and complete adress; write very plainly, and when changing our address from one point to another, do not fail to give both your old and new address. If this is done, much confusion and misunderstanding will be avoided.

Owing to the crowded condition of our columns we do not print the "Roll of Honor" this month, but next month it will appear, with names of all who have sent five or more new subscribers since the list was published last month. There were over 100 names on the list last month, and there are more than that number who sent the names during the past month. Next month should more than double the list again. If you have not yet sent your list of five or more, will you not do so at once? This increased circulation makes possible many improvements which are in contemplation. Send the list today, and let us have a great "Roll of Honor" next month. Every subscriber can get five new names if an effort is made. W. E. Carlin, Jerseyville, Ill., sent in 33 new names, and says if 3 per cent of our readers do as well, the list will be doubled—and this is true. You may not get as many as Mr. Carlin did, but you can get a few. Let us add 5,000 new subscribers before April issue.

In the April issue of the Western Fruit-Grower we will begin the publication of reports of crop conditions. We have received a number of letters approving of the plan we proposed in our January number, to establish a permanent fruit-crop reporting bureau, with information for both purchasers and sellers, but the plan has not yet been sufficiently developed. Therefore, for a time, at least, our crop reports will be in the nature of those of a year ago, when growers were enabled to save money by being posted on the general crop conditions.

We have always taken the position that no one can afford to use cheap—inferior seeds in planting a crop. The cost of the seeds is really a very small item in the total cost of any crop. Elsewhere in this issue we present an illustration showing the difference in size of radishes raised from good, large seed, and from cheap, small seed of the same lot and variety. Now, as a rule, all seeds are sifted, and the cheaper grades are the small ones. There will be more seeds in a pound, it is true, but there is actual loss in planting them, when good seeds can be secured for a little more money. It is doubtless true that the seeds in that package which you have received from your congressman and senator are of these small grades. The government has no business in sending them out, and we believe the former cannot afford to plant them, in many cases, as a gift. For instance, we recently received several packages of seeds from one of the national law-makers from Missouri. It was not his fault—somebody had to have them, so he sent some to us. Among the packages was one of squash seed, "a good autumn sort." In this package were fifteen seeds, eight of them very small and thin, the other seven only fair in quality, and not one good, plump seed in the package. Now, do you suppose anyone could afford plant those seeds and depend on getting a stand for a crop? We do not believe the entire package would have contributed enough plants for one hill, and the person who planted them with the expectancy of getting any squashes would certainly be doomed to disappointment. Just two suggestions: Don't depend on the government free seeds; as soon as possible the farce should be suppressed, but until it is, depend on first class seeds for your crop. And the other suggestion is not to hunt the cheapest seed you can find when you go to buy. Cheap seeds are often the most expensive. Get a good article from a reliable firm, and be willing to pay a fair price for it. Not everything which is low in price is cheap—especially in seeds and nursery stock.

The Missouri Fruit-Experiment Station, Mountain Grove, Mo., under the direction of Prof. Stinson, is helping the farmers of that section to learn how to spray trees properly. Spray pumps and appliances have been mounted in a railway car, and at many railroad stations stops are made, and the growers are not only told how to spray their trees, but they are shown how to do the work. We look for great good to come of this work.

What a diference there is in men. One farmer says he will cease trying to grow apples or other fruits, because insects and other pests have become so destructive the work is no longer profitable. His neighbor says he will try all the harder to groow perfect fruit, knowing it will be in demand. He is unwilling to admit that he cannot successfully cope with insects, etc., and, with a streak of stubbornness in his nature, is determined to succeed. Nature is well balanced in every way. The man who accomplishes much, through great difficulties, is likewise rewarded liberally. The man who grows a crop easily, with the expenditure of little labor and the expenditure of little judgment, is not well paid for his time. It may be assumed that if it be true that fruit is harder to raise—which we do not believe—than it has been in the past, the monetary reward will be greater.

A Jasper County (Mo.) subscriber sends us a letter in which complaint is made that often farm papers publish exaggerated statements of yields of fruit farms, etc. This is true. Fruit papers sometimes make this mistake, poultry papers very often. The ones who are most often deceived are people who live in the cities, and who are led to imagine that they can get rich in a few years by embarking in poultry-keeping or fruit-raising. This is doubly wrong—it induces inexperienced persons to invest money and lose it, and it hurts those who are already in the business. We try to keep the Western Fruit-Grower free from this fault. There are articles at times which show profit in fruit-growing, but the impression is never left that this has been accomplished without labor and the exercise of good judgment. We doubt if many men succeed in raising fruit, who are actuated solely by financial considerations. The one who loves nature, who loves fruits and flowers, and who is willing to work, who tries to keep posted, will succeed in most cases, but not the least portion of his reward is in the joy that comes to him because of his love of the work. He will oftentimes have to look not to the money received from the crop for his reward, for the money will be minus—he will have to derive a pleasure and a joy from seeing the plants grow, from being close to nature in his work. There is no life more ennobling, we believe, than that of the fruit farmer, and as Prof. Bailey says, it is worth while to have planted a tree merely for the sake of planting. The statements which are often made may be true, but they do not tell of the failures which have preceded these great chops. Let us not mislead.

The Western Fruit-Grower has received many letters approving our position in regard to the trap lantern controversy. Certainly there should be only one position to take, with all the evidence that has been submitted, but it seems there are those who are not yet convinced. The following will still further help to expose the claims which have been made that these traps catch the codling moth, if any additional evidence is needed, after every entomologist in the country condemns the traps for this purpose:

Two traps for insects were set up in the grounds of the Ontario Agricultural College and kept burning from June 7 until September 7. The insects captured were taken out and identified every morning. Following is the result of the captures:

	Per cent of all taken
Ichneumon flies	70
Lady-birds	2¾
Ground beetles	1½
(The above are decidedly beneficial insects.)	
Dung beetles	6
Mosquitos	5
Fire flies	2½
Crane flies	1½
May beetles	5
Squash bug	2
Cucumber beetles	2¾
Codling moths	0

"If these were in operation for four months, probably forty milions of decidedly beneficial insects were captured and destroyed," says the report.

February broke all records in our subscription department. This is due to a great extent to the work our friends are doing. In former years March and April have been better than other months, and if this record is kept up this year, there will have to be good work at once. Get up at least a club of five new subscribers, and help in the work. We are counting on every subscriber being interested, you know, for increased curculation means a better paper in every way.

We referred last month to the fact that New York fruit-growers had passed resolutions condemning the appropriation of money by the government for the irrigation of the arid regions of the West. It seems to us this is a narrow view on the part of our Eastern friends. No one will deny that this vast region should be supplied with water, and no one who understands the situation will doubt that it must be done by the national government. The position the Eastern farmers take is that the development of this section will bring all the rich, fertile lands of the West into competition with their own farms. But this is wrong. There will always be a demand, as has been demonstrated time and again, for the products of Eastern farms in the cities of the East. These same cities, by the way, have been built up largely by the same species of paternalism which the Easterners now denounce—by the protective tariff, by the appropriation of money for rivers and harbors, and in similar ways. The West has been peopled with the sons of the East, and the opening of any new country will mean that the markets for the products of the Eastern factories will be enlarged. It is foreign to the nature of fruit-growers to take such a narrow view of affairs, and we believe the Eastern fruit-growers will in time change their stand. The Colorado Horticultural Society has passed resolutions favoring the plan to have the government provide for the irrigation of this tract, and they have rebuked the Eastern societies which have opposed it. If competition is what is feared, the Colorado growers who already have their farms and irrigation ditches, have much more to fear than their brethern on the Atlantic seaboard.

In previous issues we have urged readers of the Western Fruit-Grower to send their orders for nursery stock early, as there is a shortage in many lines. A letter just received from a prominent nursery firm, says that it has only 13,000 peach trees left, all kinds and grades—and it is one of the largest growers of peach trees in this section. This firm also says it has no large surplus in any general way, but it is very difficult to impress this fact upon some customers, who have been talking about placing orders since last November. This letter concludes: "They will likely be disapointed in the end, after their delay, for nurserymen do not count anything except orders which have been received." Of course, all nursery orders should have been placed long ago, but if they haven't been, we urge our readers to order at once. And almost the same situation exists in the seed trade. Get your seeds early. And buy from our advertisers, too, for we believe their seeds are as good as the best.

Secretary Coburn of Kansas says alfalfa should be more generally planted in the Sunflower state—and no one is in better position to know than Mr. Coburn. Oklahoma experiment station recommends alfalfa in that territory, and it is also being extensively planted in Nebraska. There can be no question alfalfa can be planted to advantage on many farms in this section, and the land improved by the crop and splendid hay crops secured at the same time. The next few years will be alfalfa years, we predict.

How Is This for Praise?

"We wish to state that the Western Fruit-Grower, in our judgment, is the very best advertising medium for the cost that we have ever used. And if you will allow us to express a confidential opinion, we would like to say that we believe your rate is too low."—New Haven Nursery Co., New Haven, Mo.

This firm doubles its space in this issue. During the past few months we have received other letters stating that the Western Fruit-Grower's advertising rate is to low for service rendered. No more need be said, except all our advertisers make same report as to results—all are pleased, almost without exception.

Economy in Thinning Fruit

Every orchardist with a few bearing trees should arrange to thin fruit, and not allow the tree overbear. It is usually recommended to thin the fruit early, but to pull fruit off and feed to pigs is not economy, in my mind, and so I tried a different plan. At the beginning of July I observed that a Yellow Transparent tree had apples much smaller than in past seasons. The ground was very dry, for I needed all the water from my irrigation ditch to water my berry plants. However, I dug a circular furrow around the tres and let the small stream run three days and nights. The stream was very small, not larger than my little finger, yet in two weeks it was a pleasure to note the marked improvement in the size of the apples. A small quantity of water had worked a great change. I thinned the fruit somewhat, taking off a great quanity, and the fruit so pulled off sold for five cents a pound. A week later I gathered a lot more of the apples, and they brought the same price. Later pickings sold for less money, for the fruit was more plentiful on the market. This method of thinning just before ripening time, taking off the largest apples, will allow the remainder left on the tree to mature nicely.

I never tried winter irrigation, but think I will try it. I believe it will be good treatment for the sub-soil, and that there will not be so much drying out in summer. Will report later my experience. E. HOLT.

Big Fork, Mont.

Irrigation Notes

I notice that Mr. Patch of Wisconsin, has been awarded the set of horticultural books for the best articles on the subject of irrigation. I wish to congratulate him and to commend your good judgment in awarding him the premium. If there were any good way of judging the matter, I would be willing to offer $10 in cash for the next article or series of articles on the subject of irrigation, if they would bring me as much practical information as the articles already published in the Western Fruit Grower have. I consider they have been worth several times $10 to me. I am at this time preparing several acres to irrigate in addition to the plant we operated last season. I will experiment quite a little during the summer, and hope to give your readers some points later.

The apples from our irrigated trees have kept to perfection. Some thought that because they were so full of juice they would not keep as well as those which were not irrigated, but our experience goes to show that the better an apple matures the better it will keep. A. S. PERRY.

Yukon, Okla.

Experiments in Horticulture

Prof. Samuel B. Green, horticultural department of the University of Minnesota, has issued for the students in that division a very neat bulletin giving an outline of the greenhouse laboratory work as conducted at that institution. This bulletin, which is for the students, rather than for general circulaion, gives an outline of some of the work which is done in the laboratory, as outside work is out of the question when school is in session.

From the bulletin we publish the accompanying illustrations, showing two experiments which the student conducts for himself to impress certain things upon his mind. Both are interesting to our readers, we are sure. The first is in planting large or small seeds —and commercially this frequently means good seeds or cheap seeds.

"There is generally an advantage in sowing large seeds. In the case of the radish the large seeds give larger and earlier radishes than the small seeds. At the station in 1901 the difference in the product was as follows:

"Large seed—Marketable, 57 per cent; small, 43 per cent. Small seeds —Marketable, 34 per cent; small, 66 per cent. The product of the large seed was marketable four days earlier than that from the small seed."

The accompanying illustration shows the relative size of the radishes from the large and small seeds, those from the large seeds being shown on the left.

Radishes from Large and Small Seed

The other experiment is in fertilizing spinach with nitrate of soda. Two six-inch pots are filled with good potting soil, and in each 12 spinach seeds are planted. When the plants are well started they are thinned to three in a pot. One is watered only with water, the other with water in which nitrate of soda has been dissolved at rate of one ounce to the gallon. The dry nitrate could be put directly on the surface of the soil, but unless much care is used it is liable to burn the plant if it comes in contact with it. After four weeks there is marked increase in size and vigor of foliage, and it is not uncommon in this experiment to get ten times as much foliage on the fertilized plants as on those which were not fertilized.

Nitrate of soda comes from Chili, and is one of the chief nitrogen fertilizers. It is especially valuable as a fertilizer for early leaf crops, and is often used by market gardeners. The effect of large quantities of it in the soil is to cause an excessive growth of dark green leaves and wood. Lettuce, cabbage or other leaf crops will give about as good returns as spinach. The illustration shows the difference between the fertilized and unfertilized spinach.

Spinach Fertilized and Unfertilized

New Ideas

By new ideas I mean that they are new to me First, In 1900 I made harrow 3½ feet long, oak frame 3x4 inches square, ½-inch steel teeth, set at an angle of about 35 degrees, the hind teeth being 15 inches apart, so that they cut within one inch of each other; plow handles attached; goose neck hitch standing six inches above level of frame, to hold front end down; boards nailed across to carry from one to two hundred pounds of stone. That year it proved to be valuable in the highest degree for breaking thin crust, or destroying weeds just up, or for running close to small plants. Last year ground baked hard in a neglected one acre strawberry-bed, where plants covered ground so alleys, or middles, could not be distinguished only now and then. Mowed and raked off vines. With 150 pounds of stone began at one side leaving 18 inches for bed; ground so hard after running through once could hardly see mark. After running through four times had dust 1½ inches deep. As harrow varied more or less, alley was 18 inches or more wide. Few days after ran through with Planet Junior, and so repeated every week and soon had loose dirt 3 or 4 inches deep; and draged down with float or drag. When we began the case seemed hopeless, but few live plants to be seen, one-half were actually dead. Cultivation drew moisture; two or three showers came; plants began to revive, and later rains put these beds in good condition for this year. My harrow saved them. Formerly I used a disc harrow for similar work, removing some outside and some inside discs, leaving two groups cutting 18 inches, and leaving 18 inches for beds, but my harrow beats that and for hard ground it beats the Planet Junior, or any other implement ever made so far as I know. In other beds not so neglected, where ground had baked it was a success. They say we ought not let the ground bake. Very true, but who does not? In ground plowed up and left cloddy it pushes clods about and does nothing. It costs so little and is so durable. I have rolling runner cutter attached on cross bar, but have not tested thoroughly. Believe rolling cutter wheelbarrow style, and run by hand, is better.

Second—In 1900 made oak roller, 15 inches long, 16 inches high with plow handles to push by hand—too light and too laborious. Last year put on half circle iron rod with sliding ring for hitch, so roller could be turned any way with little regard to where horse walked. After experimenting found best to confine ring a little to one side of center. Nailed box on top for one to two hundred pounds of stone. The work this did in alleys where ground was cloddy was wonderful. It ground every thing to powder. A two-foot roller would be better where alleys are left that wide.

Third—I wanted to drill cow peas two and one-half feet apart to cultivate between. Could borrow two horse corn planter with drill attachment; holes being too large could run in babbitt metal, and drill out to right size to drop seed every two or three inches, but would make rows forty-six inches apart—by straddling row would put them twenty-three inches apart. Now what is to be done? No pay in buying one-horse drill for small job. After a month of brown study I hit upon a new idea; put seed in one box only and drill one row at a time, putting rows any distance apart desired. This success relieved my puzzled brain

Fourth—An idea not yet applied. A stone drag 3½ feet long, 18 inches thick, sled runner style, with hole for clevis. A variety of implements is desirable. At times one implement is useful, and at other times worthless.

Have been in small fruit business four years and know but little, but being a young man I expect to improve. Facilities for learning are now much better than when I made speeches in the palmy days of John C. Freemont.

ELIHU PARKS.

Cooperstown, Ill.

P. S. My grandfather was born in North Carolina in the second year of the revolutionary war, and our family has scattered from there into many states, notably Kentucky and Missouri. Any Parks that has a drop of lazy blood in his veins is no akin to me.

GOOD SEEDS

We offer you the very best seeds that can be produced, and at as reasonable a price as consistent with the highest of quality. The best is always the cheapest.

FIELD SEEDS Clover, Timothy, Cane, Millet, Kaffircorn, Rape, Cow Peas, Oats, etc. FINE SEED CORN A SPECIALTY.

GARDEN SEEDS All the standard varieties and specialties. Seed Potatoes. Onion Sets. Our garden seeds could not possibly be finer. We have a reputation of having the finest, sweetest and tenderest ever sold, and if you want that kind, we can certainly please you.

FLOWER SEEDS AND BULBS—Beautiful ones; all the old standbys and new ones.

HORTICULTURAL SUPPLIES Spray Pumps, all sizes, from Hand Atomizer to large Orchard Wagon Sprayer; Spraying Chemicals, Tree Pruners, Saws, Knives, Tree Protectors, Baskets, Berry Boxes, etc.

POULTRY SUPPLIES Everything for the farmer's or fancier's poultry yard. Incubators and Brooders, Oyster Shells, Grits, Bone Cutters, Egg Shipping Cases, Remedies of all kinds, etc.

BOOKS—On Farming, Horticulture, Poultry Raising, etc.

FREE THREE CATALOGS. All finely illustrated. Which do you want?

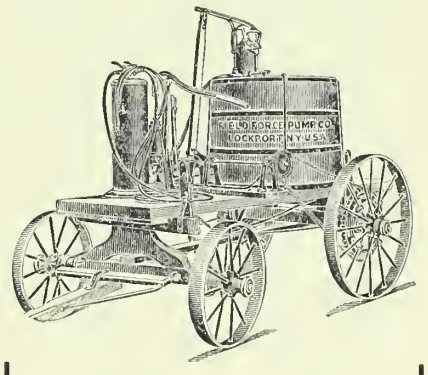
Call on us, or write us a list of your wants, for catalogue and prices. WE SOLICIT YOUR PATRONAGE. OUR SUPERIOR STOCK IS SUBJECT TO YOUR ORDERS.
"Good-Seed Book" of Field, Garden, Flower Seeds, etc.
"Horticultural Supplies."
"Poultry Raisers' Supplies."

MISSOURI VALLEY SEED CO.
418 Edmond St. "The Good-Seed Store." ST. JOSEPH, MO.

We Have Cow Peas for Sale---Write for Prices

Spray Pumps

no time to hesitate now—buy a pump and get to work. We have 30 styles, both liquid and powder. Ask for prices.
We are general Western agents for Morrill & Morley's and Field Force Pump Co.'s well-known pumps.



CHEMICALS for Spraying

It is almost impossible to get pure chemicals for spraying purposes in a small drug store—the stock is apt to be small and is not fresh. And then the price is high. We have a full line of all kinds, and guarantee purity and prices. Send at once for special horticultural catalogue, quoting prices of all kinds of chemicals, pumps, knives, saws, etc.

PARIS GREEN, LONDON PURPLE, WHITE ARSENIC, SAL SODA, COPPER SULPHATE, HELLEBORE, WHALE OIL SOAP, SULPHUR, SLUG SHOT, DRY BORDEAUX MIXTURE. EVERY THING NEEDED FOR SPRAYING.

"The Good-Seed Store."

Missouri Valley Seed Co.
Horticultural Dept.
418 Edmond St. St. Joseph Mo.

Reference: Any bank in St. Joseph; editor Western Fruit-Grower

FRUIT STOCKS
APPLE, PEAR, PLUM, CHERRY and QUINCE

Send list of what you can use and we will mail estimate of cost.

THOMAS MEEHAN & SONS
GERMANTOWN, PHILADELPHIA, PA.

SEEDS

CLOVER, TIMOTHY, BLUE GRASS GARDEN, Etc.

Also General Agents for the Celebrated

PLANET JR.

ORCHARD CULTIVATORS, HORSE HOES AND GARDEN TOOLS

Send your open orders and you will get fair treatment. . . . Send for catalogue

TRUMBULL & CO.
1426 St. Louis Ave..Kansas City, Mo.

The Lightning Compressed Air Sprayer

(Patented, 1900.)
Holds 4 gallons. Pump in a little air with the pump which is attached to the reservoir. No more labor required. Will kill all kinds of insects. Will spray tall trees. Will spray two rows of potatoes at one time as fast as the operator can walk. Big money for agents.
D.B. Smith & Co.Utica,N.Y

Spraying Materials

Blue Vitrol, Paris Green, London Purple Carbonate of Copper, Whale Oil Soap, quantities to suit, also all fertilizing material.

WHITELAW BROS. St. Louis, Mo.

GARDEN SEEDS

All the best and most practical garden and Vegetable Seeds, all new. Every pound of our seeds grown in 1901. Don't buy seed 10 years old, when you can get new, fresh seed at same price. Write for FREE Catalog of all best and leading Farm and Garden Seeds; also our "BOOK ON CORN GROWING." Address J. R. RATEKIN & SON, SHENANDOAH, IOWA.

STRAWBERRIES and all other small fruits.
We are headquarters for the best; also native Plums and all kinds of fruit trees, shade trees, lawn trees flowering shrubs, garden roots, etc. Our New Free Catalogue tells all about them. Send for one today.
COE & CONVERSE, Box 12, Fort Atkinson, Wis

0 Say! I have 400,000 berry plants for sale, spring, 1902. Strawberries, raspberries. Catalogue middle February.

B. F. SMITH
P. O. Drawer C., Lawrence, Kas.

LUCRETIA
Dewberry Plants

Extra fine plants at $5.50 per thousand, f.o.b. Progress Raspberry plants, $4.50 per thousand, f.o.b. Strawberry plants, $2.50 per thousand, leading varieties.
E. N. PLANK, JR., Decatur, Ark.

SWEET POTATOES—Sent out to be sprouted on shares. No experience required. Directions for sprouting free with order. Also Sweet Potatoes for sale. T. J. SKINNER, COLUMBUS, KANSAS

GRAPES
Strictly first-class vines of best varieties for garden or vineyard by mail, express or freight. For $1 I will mail, postpaid, five each, Niagara Brighton and Worden, best white, red and black varieties. Safe arrival in good condition guaranteed, and to induce early orders will send treatise on "Grape Culture" or 12 Gladiola bulbs, beautiful mixed colors, free. Order now. Will mail Grape Culture at once; vines and bulbs in early spring. Price list free. J. H. Tryon, Willoughby, Ohio.

There are two kinds of Trees; Safe Trees and the other kind. Rogers Trees are Safe Trees.
THE ROGERS NURSERIES,
Tree Breeders. DANSVILLE, N. Y.

GRAPE VINES
Currants, Gooseberries, Blackberries, Raspberries, Strawberries. Price List FREE.
Send 2c stamp for illustrated descriptive catalog.
T. S. HUBBARD CO. Fredonia, N. Y.

Watering Strawberries

I have read the article in the January number of the Western Fruit-Grower on "Watering Strawberries," with considerable interest, as I have watered a few srawberries myself.

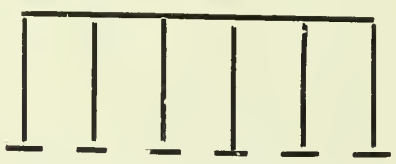
Some years since I tried surface irrigation on a bed 40x50 feet, that had been set six or seven years; the plants were first set in rows four feet apart, and fifteen inches apart in the row, but had then covered the ground completely.

I flooded the ground when the plants were in bloom, and at intervals of a week or ten days thereafter, until all of the fruit was picked. From this bed I picked and marketed over 500 quarts of berries, every box of which sold for 15 cents, while berries which were shipped here brought only 6¼ cents a box. I would like to remark, incidentally, that at each flooding of the bed the robins were on hand promptly to take a bath, and pick up an honest living, by taking in the cut worms that were floated out of their places of concealment by the water. I have never seen a robin pick or injure a strawberry.

I believe it is necessary to water strawberries at times, (when the fruit is setting, growing and ripening, the demand for moisture is imperative), but for the growing of plants for the following years fruiting or to set new beds, I think we should be very careful in the use of water, especially when applied to the surface, as I have found that to apply lots of water to the propagating beds produces lots of plants, with an abundance of foliage, but that these plants were so deficient in root systems that they were practically valueless for either new beds, or for fruiting. Not a single plant had sufficient roots to sustain its life when set in a new bed, except under the most favorable conditions; nor to perfect only the most meager crop of berries when left to fruit in the bed where grown.

On either hand, plants grown by careful cultivation without irrigation had such quantities of roots, that, to do a first-class job of setting them, it was necessary to remove at least one half of the roots. There was not more than one-half as many plants raised on the same amount of land, as by the irrigation method, but one plant raised without irrigation is worth three raised with; that is, surface irrigation; sub-irrigation is different, though I believe the best results will be obtained in propagating new plants by using as small an amount of water as possible, consistent with vigorous growth.

I have a very small irrigation plant raising water from a well, by wind power, using part of the water for surface irrigation, and part for sub-irrigation. For sub-irrigation I use three-inch drain tile, laid fourteen to sixteen inches below the surface of the sixteen inches below the surface of the earth, in rows five and one-half feet apart, the rows connected by a head row in which it laid one "T" joint for each latteral row, thus:



The rows must be absolutely level, not following the inequalities of the surface, in order that the low places shall not get more water than the high, and the ends of the rows must be closed with brick or stone, so that moles, rats or other vermin connot get in; a square box set in the ground at one end of the head row gives access to that, and through it to all other rows, and it should have a wire netting over the top to keep out trash as well as vermin. The toop of the box should be raised above the surface of the ground enough to keep out storm water, as that would cary in mud and trash and so fill up the tiling; the tile being porous and the joints not cemented allows the water to pass through freely.

This mode of irrigation has several points to recommend it, above others:

First—You can turn on the water and do not have to watch it to see that it does not all run to the low places.

Second—The ground does not begin to bake in a few minutes ofter the flow of water is stopped, as in the case with cultivated ground under the surface irrigation.

Third—Most of the moisture being several inches below the surface, the rootlets go down instead of spreading out near the top of ground, as in surface irrigation, where they are liable to be burned up by the hot sun or torn off by the cultivator.

Fourth—Should the rainfall threaten to be too lavish and thus ruin the crop, the end of a row of tiling can be opened into a nearby ditch, and your ground is thoroughly drained at the right time.

The cost of preparing an acre of ground, where fairly level, for this kind of irrigation, at present prices of labor and tiling, would be about $120 or $125. A. HEMMANT.

Halstead, Kan.

What Advertisers Say

Inquiries and orders from our ad are still coming in. We are more than pleased.—M. Brunswick & Co., Rochester, N. Y.

We have more inquiries coming through the Western Fruit-Grower than through all other advertising mediums combined.—Hart Pioneer Nurseries, Fort Scott, Kan.

Good Pruning Shears

During the past month we have sent out many pairs of the Levin Pruning Shears, advertised elsewhere in this issue, and have yet to receive a word of complaint. A. S. Perry, Yukon, Okla., says: "They are the 'powerfulest' shears says: "They are the 'powerfulest' shears made."

Order a pair at once. They are guaranteed by the manufacturer and by us. The price includes postage.

Bird Webster, Siloam Springs, Ark., writes: "Send me some extra copies of the Fruit-Grower for samples, as I want our union to subscribe in a body. The article, 'Roland Morrill on the Stand' was worth many dollars to the peach growers here if they will only follow his advice. Our local paper will reprint the article. We had a heavy crop of peaches and apples here last year, and peach trees are in excellent condition for a crop this season. No buds killed at this date. Many new orchards being set, but nursery trees are very scarce. Long live the Western Fruit-Grower—only wish it were a weekly."

State Entomologist Scott of Georgia says the peach crop of that state will be a record-breaker this year, if the buds are not injured by late frosts.

I WILL CURE YOU OF
Rheumatism
No Pay Until You Know It

After 2,000 experiments, I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always, at any stage, and forever.

I ask for no money. Simply write me a postal and I will send you an order on your nearest druggist for six bottles of Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month, and if it does what I claim pay your druggist $5.50 for it. If it doesn't, I will pay him myself.

I have no samples. Any medicine that can affect Rheumatism with but a few doses must be drugged to the verge of danger. I use no such drugs. It is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take this risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay, and gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. Let me send you an order for the medicine; also a book. Take it for a month, for it won't harm you anyway. If it cures, pay $5.50. I leave that entirely to you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

Here is the Strawberry
there is so much talk about
"Nichol's Granville"

Prof. Green says—"I have not seen a better berry for table use or canning. Is far superior to Warfield and Enchance in quality."

REMEMBER to send to originator for prices and description before all are sold. It is a coming berry and don't you forget it. Address

A. M. NICHOL, Granville, Ohio:

Southwestern Iowa BLUE GRASS SEED LEADS... THE WORLD

Grown on lands never touched with the plow. Can contain no Weed Seed. Absolutely Pure and Highest Germinating Power. Why wait years to get a thick Pasture or Meadow? Sow our Blue Grass and Mixtures of Clover, Alsike, Alfalfa, Bromus Grass, Timothy, Meadow, Tall and Sheep Fescues, Orchard Rye and Oat Grass, Water and Floating Grass, all Natural Grasses for all kinds and conditions of soil. We are strong on all Field, Garden and Flower Seeds. We sell to you at Wholesale Dealers' Prices. Good Seeds for Little Money. Our Catalogue tells all about it. It's free. Only Ask through a Postal Card.
A. A. BERRY SEED CO., BOX 64, CLARINDA, IOWA.

Three Months Reading.
If you will send us a list of not less than forty names and addresses of prosperous English speaking farmers, or stock raisers, living in your county, we will send you
THE TWENTIETH CENTURY FARMER
a 24 page illustrated weekly, the best family agricultural paper published, either east or west, to your address for three months
Absolutely Without Cost.
Write at once for free sample copy. It will please you.
THE 20TH CENTURY FARMER, 1628 Farnam St., Omaha, Neb.

Do You Use Water
Then you need a power to pump it to your house or barn. The RIFE Hydraulic Engine is the best. Pumps more water. Never stops. Requires no attention. Sold on 30 days trial. Send for free book.
RIFE ENGINE CO., 126 Liberty St., New York.

WRAGG TREES We Grow Them
So we can guarantee them. All the varieties known as "best" are from our nurseries. Handsome illustrated catalogue on request. THE OLD RELIABLE
..CENTRAL NURSERIES..
J. WRAGG & SONS CO., WAUKEE, IOWA.

HAY STOCK COAL COTTON
U.S STANDARD OSGOOD SCALES
PRACTICAL For all uses. Any size platform; single, double, combination beam. Free catalogue. Special offer. 30 days' trial.
OSGOOD SCALE CO., 176 Central St. Binghamton, N. Y.

$2.00 Dress Cutting System For 15c.
Why pay $5.00 for learning dress cutting when it can be done for 15c. The easy dress cutting instruction is a simplified system that can be learned at home by any girl of 12 years. The book of instructions is so plain and easy to understand that no teacher is required. Every girl or woman ought to have it, and thereby be able to save money by making her dresses, or earn money by making dresses for others. It is simple, accurate and cheap. We have made arrangements with the owner of this system whereby we are enabled to make this offer for a short time only. On receipt of 15c in stamps and the names of 15 prominent farmers in your vicinity, we will mail you this system, all charges prepaid. Address,
Snow, Schmiedeskamp & Co., Dep. 30 Mail Order House Quincy, Ill.

LIFE SIZE DOLL FREE "Baby's clothes will now fit Dollie."
Girls can get this beautiful Life Size Doll absolutely Free for selling only four boxes of our Great Cold & Headache Tablets at 25 cents a box. Write to-day and we will send you the tablets by mail postpaid; when sold send us the money ($1.00) and we will send you this Life Size Doll which is 2½ feet high and can wear baby's clothes. Dollie has an Indestructible Head, Golden Hair, Rosy Cheeks, Brown Eyes, Kid Colored Body, a Gold Plated Beauty Pin, Red Stockings, Black Shoes, and will stand alone. This doll is an exact reproduction of the finest hand painted French Doll, and will live in a child's memory long after childhood days have passed. Address,
NATIONAL MEDICINE CO., Doll Dept. 367 , New Haven, Conn

Berry Boxes
Best quality, also crates, tacks, wire machines, grape baskets, labels, moss, sprayers and all kinds of fruit growers' supplies at BARGAIN PRICES for early orders. Ask also for a copy of our large Illustrated Seed Catalogue. Mention this paper.
IOWA SEED CO. DES MOINES, IOWA.

1427 Silk Fringe Cards, Love, Transparent, Escort & Acquaintance Cards, New Puzzles, New Games, Premium Articles, &c. Finest Sample Book of Visiting & Hidden Name Cards, Biggest Catalogue. Send 2c. stamp for all. OHIO CARD CO., CADIZ, OHIO. CARDS

500,000

Johnson's Early Strawberry Plants at $1.40 per 1,000

IN 3,000 LOTS AND UP.

These plants were cultivated for fruit and were kept thin, and we feel sure that they are better size and more vigorous than you can get from matted nursery beds. Our plants from which these were grown were from the originator, and are strictly true to name and unmixed.

100,000 EXCELSIOR at $1.60 per 1,000

Descriptive catalogue free, but about all stock sold except two varieties named above. Send all orders to

J. W Jones & Son, Allen, Md.

Blooming Plants

Choic Assortment Clean Stock—Order for EASTER now

Sixth & Francis **L. J. Stuppy**
St. Joseph, Mo. **FLORIST**

ATTENTION!

Commercial Orchardists

If you want the moneymakers,

Missouri Pippin
Ben Davis
Gano
Jonathan

or other fruit trees. Address at once,

A. C. Griesa & Bro., Lawrence, Kansas

Mt. Hope Nurseiries.

Vincennes Nurseries

VINCENNES, IND.

W. C. REED, Proprietor.

We offer for spring a very fine lot of

KEIFFER PEAR, 2 years
APPLE, 2 and 3 years
CHERRY, 1 year, very fine
PEACH, 1 year, very fine

Complete stock of Pear, Plum and Small Fruits, Carolina Poplar, Roses, Etc. Send us a list of wants.

SURPLUS OF DUCHESS & WEALTHY APPLES

Crab apple of several varieties, Idaho Pear, Abundance Plum, White Spruce, Scotch Pine, Balsam Fir, Arbor Vitae, etc. Send list of your wants and get our prices. Our dried baled Sphagnum Moss always in stock.

Z K JENNETT & CO, Spirit, Wis.

Look Here, Planters!

The Knox Nurseries offer GREAT INDUCEMENTS on Bed Davis and other leading sorts of apple trees. Also have a good line of other nursery stock, and for immediate orders we shall be pleased to quote you very low prices. Let us here from you quick.

Mahaleb Stock 1-6 mm. Very fine.

American Arbor Vitae, 3 feet.

Fifteen bushels of Black Cow Peas for sale.

We hope to hear from all who are contemplating planting an orchard this spring. We will make it to your interest to buy of us.

H. M. SIMPSON & SONS, Vincennes, Ind.

Buy your Tobacco direct from grower. Best leaf, $15 per 100 lbs. Address J. W. Cluke, Princeton, Ky.

FARM FOR SALE

I offer Pantop's Fruit, Poultry and Jersey farm for sale; 119 acres; 33 acres in orcahrd, mostly apple. One mile from Elsberry, Mo., on Burlington Railroad; 68 miles from St. Louis. Abundance of water; five room house; good kitchen orchard, berries, cherries, plums, etc.; 25 acres wheat, 8 acres rye, 25 acres new ground ready for corn; land clay loam; ideal orchard site.

$1,500 will handle the property. Balance on long time. Will give possession at once. Write at once to James M. Rogers, Elsberry, Mo.

PANTOPS SILVER LACED WYANDOTTES—20 Cockrels, scoring above 90, for sale. Fine Wyandotte shape, fine lacing, especially strong in laced Wing Bar. Send for egg circular. A pure blood Jersey bull calf for sale. James M. Rogers, Elsberry, Mo.

Good Culture for Strawberries

In my seventeen years' experience my acreage has varied from as low as one acre to as high as twenty acres in cultivation at one time, but I have learned that the smaller the acreage in strawberries the larger the bank account, I mean by this that not one foot of land should be set in strawberries by anyone beyond what he can give the most intensive cultivation and best of care and treatment. Ten years ago I used to raise from 2,000 to 2,500 quarts to the acre. This was always second class stock, but as there was little competition we managed to make a living out of it, and five or six years back I raised 11,000 quarts on two acres of Lady Thompson. These were nice in quality and were sold at a good price. But last year shhowed something of the possibilities of a strawberry grower who understands his business. I had one acre of Clyde and Seaford from which we sold 7,000 quarts of first-class berries, for which I received 7c per quart at the railroad station, and deducting 1c per quart for the picker, leaves a net income of $420 for a single crop on one acre. Last season was a very rainy one and we were frequently run out of the patch by showers at picking time. This is a strong argument in favor of irrigation, and I am watching out for information on irrigation, as I believe that the man who can supply his berry beds with plenty of water and good cultivation is the only berry grower that will ever amount to anything.

W. Va. D. GOLD MILLER.

SMALL POX.

This dreadful disease is now very prevalent in all parts of the country, and, as exposure to its malignant breath is liable to occur at any time, no matter how careful we may be, it behooves everyone to take proper precautions to prevent the germs from affecting the body. The doctors say that pure blood, good digestion and regular bowel movements materially aid the body in resisting attack, hence it is the course of wisdom to purify and strengthen the system without delay. A most effective remedy for this purpose—one that combines the necessary properties for purifying the blood, strengthening the kidneys, toning up the digestive organs and for cleansing and regulating the bowels, will be found in the well known system tonic and purifier, Prickley Ash Bitters. This valuable remedy is the right thing for putting the body in shape to resist the effect of exposure to Small Pox. No one will knowingly expose himself to this disease. The exposure usually takes place when it is least expected, therefore the need of precautionary measures is the more urgent. It is safe to say that the frequent use of Prickly Ash Bitters while the disease is so prevalent will keep the body in such fine physical condition that no ordinary exposure will affect it.

BANDING TREES.

It is getting late now to band trees to prevent the ascent of the female canker worm moth. In many sections eggs have been already laid, during the warm weather earlier in the month.

But there are sections where it may be not too late to band the trees and in such cases the banding should be done at once. Nothing better for this purpose than Bodlime, made by Bowker Chemical Co., Boston, Mass. This preparation has been advertised in these columns in the past, and has been used by many of our readers.

Besides Bodlime, the Bowker Chemical Co., makes other preparations which are of use to fruit growers, such as insecticides, fungicides, etc. Write for catalogue, and when you do so, mention the Western Fruit-Grower.

Farm and Ranch is a great paper for great people—the home builders' guide to success, the producers' text-book. With all numbers on file a subscriber has a valuable library and an excellent source of reliable information for brainy, business home seekers. Farm and Ranch is an education, a moral preceptor, an interesting, reliable and instructive weekly visitor to over 40,000 homes. When known to them every intelligent, progressive family in the Southwest will read it weekly. As a family, farm and stock journal it has no equal. Every department is under the charge of an editor of known, recognized ability. Its illustrations are unexcelled in attractiveness. At its price it is the greatest bargain ever offered the people. Three months, 25 cents; six months, 50 cents; one year, $1.00. Sample copy free. Liberal premiums and cash commission to agents. FARM AND RANCH, Dallas, Texas.

WICHITA NURSERY.

This firm, which is the successor of the Wichita Nursery Association, reports a good supply of nursery stock still on hand, and will fill orders as they are received. W. F. Schell is manager of this firm, and says his stock was never better than at the present time. During the past few years this firm has enjoyed an excellent trade, and many thousand of their trees have been planted in orchards in the Southwest. Situated as it is in the same country as Oklahoma and Southern Kansas, this firm is especially well prepared to supply the wants of planters in that section. Our readers who are wanting stock of any kind should write the Wichita Nursery, Wichita, Kans., at once. The time for planting is almost at hand, and orders should be sent immediately. See the ad of this firm, nad when you write mention the Western Fruit-Grower.

Manufacturers of dust spraying machines report an unprecedented demand this season, and in some cases they are way behind with orders. The success of those who have used the dust process during the last few years has led many persons to use it this season. Mr. G. C. Johnson, manager of the Dust Sprayer Manufacturing Co., Kansas City, Mo., says his company is behind with orders, and those persons who wait until the last moment before sending their orders are apt to be delayed, as the first orders received are filled first. Dust spraying will save much work, and thousands of them will be used this season.

Every day in March and April 1902, to points in Montana, Idaho, Washington, Oregon and British Columbia, via Chicago Great Western Railway. Tourist Sleepers and Free Chair Cars to St. Paul. For information apply to H. I. FAY, Ticket agent, St. Joseph, Mo.

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The "1900" Ball-Bearing Washer Saves Time, Labor and Expense of Washing Clothes.

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The "1900" BALL-BEARING WASHER is unquestionably the greatest labor-saving machine ever invented for family us. ENTIRELY NEW PRINCIPLE. It is simplicity itself. There are no wheels, paddles, rockers, cranks or complicated machinery. It revolves on BICYCLE BALL-BEARINGS, making it by far the easiest running washer on the market. No srength required, a child can operate it.

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Edward C. E.
Sparkhill Rockland Co. N.Y. Oct 29 1901
F. A. E. Jersey City N. J.

Sparkhill, Rockland, Co., N. Y., Oct. 20, 1901
'1900" WASHER COMPANY,

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Enclosed you will find a check in full payment of the washer. Please acknowledge receipt of the same and oblige, Respectfully Yours, EDWARD KENT.

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THE "1900" WASHER CO., 69 T. State St., Binghamton, N. Y.

A DAY'S WASHING IN 3 HOURS.

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The washer I received from you is the best I ever saw. It will do all you claim for it. I can do the washing in three to four hours, where it took a colored woman a whole day to do it. We have ten boys and three girls, and you can judge from that, that we have large washings. Myself and daughter would not part with this machine for twice what it cost. We live on a farm.

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GREASY OVERALLS WASHED CLEAN.

San Francisco, Cal., Dec. 25,'99.
1900 WASHER CO.:

Gentlemen—I received the washing machine in good order on the 15th inst. My wife had saved three weeks' washing to try it. She commenced washing at seven o'clock an at eleven all the clothes were on the line. It would have taken two days to do all this work in the old way; and the washing was done clean. Greasy overalls, which I use in the engine room, could not have been done better in a steam laundry. She would not part with the washer if she could not get another like it, if she was offered $100. Yours truly,

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Marine Engineer,
1006 Channing Way, West Berkley, Cal.

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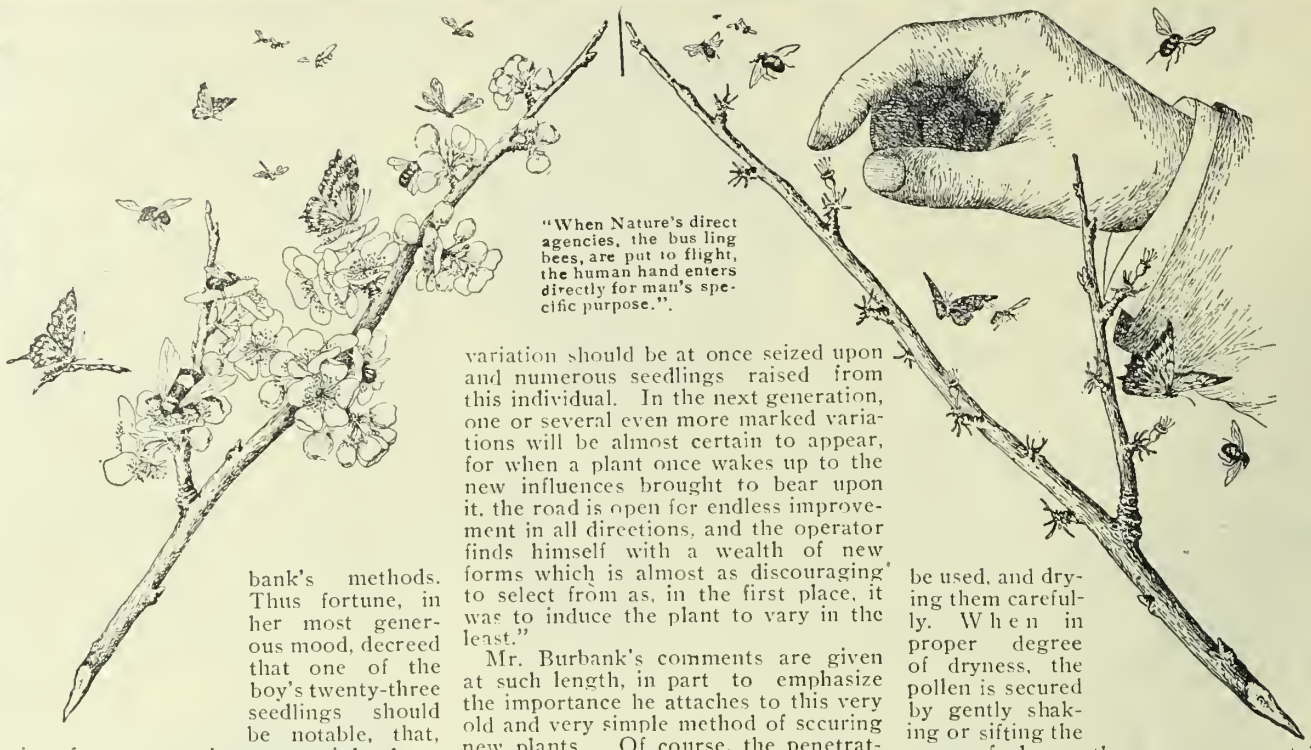
Luther Burbank's Work



"When Nature's direct agencies, the bus ling bees, are put to flight, the human hand enters directly for man's specific purpose.".

IN our last issue we told something of the man, Luther Burbank. This month we wish to give a few suggestions of the methods pursued by him. In presenting these notes we wish to make acknowledgement, as we did last month, to the Sunset Magazine, which first published Prof. Wickson's most interesting articles. We have not the space to publish the articles in their entirety, so we must content ourselves with using only that portion which we believe will be most interesting to readers of the Western Fruit-Grower.

To begin with, Mr. Burbank recognizes no limitations nor classification barriers, except as they arise in man, and then they are indications of narrowness in man, and not in the Creative plan. In July last Mr. Burbank read a paper before the Floral Congress in San Francisco, in which he said:

"The chief work of the botanists of yesterday was the study and classification of dried, shriveled plant mummies whose souls had fled, rather than the living, plastic forms. They thought their classified species were more fixed and unchangeable than anything in heaven or earth that we can now imagine. We have learned that they are plastic in our hands as clay in the hands of the potter or color on the artist's canvas, and can readily be monlded into more beautiful forms and colors than any painter or sculptor can ever hope to bring forth. * * * The changes which can be wrought with the most plastic forms are simply marvelous, and only those who have seen this regeneration transpiring before their very eyes can ever be fully convinced."

Believing in the natural tendency to variation, Mr. Burbank naturally looks upon artificial selection as the chief agency through which his many achievements have been attained. All the methods by which variation can be induced or promoted are merely avenues through which forms are led to the bar of selection. Of course, selection is an old art. It was practiced even in prehistoric civilization, because history begins with improved forms of plants and animals. Selection to Mr. Burbank, is a constantly unfolding principle. It excited his youthful interest and curiosity; it engrosses his deepest thought and employs the finest arts of his manhood; it will irradiate his last glance at earthly scenes.

Selection is, then, a first and last art in the development of new forms of plant or animal. With the founders of civilization it was selection of the results of natural variation which seemed desirable; with the beginner of the present day it is usually the same. Mr. Burbank began that way and it became the first of his methods. It was his fortune that one of his earliest achievements proved so notable. In his youth the older varieties of potatoes gave clear signs of degeneration and interest was keen for better varieties. Many were striving for them and splendid results had been secured. He cast his twine line and pin hook in the same waters. He planted a lot of Early Rose potatoes in his mother's garden in Massachusetts and watched for the seed balls in which his possibilities would be enclosed. Varieties of potatoes, with vegetative energies diverted by long multiplication from the tuber, become scant in seed production. On the whole patch young Burbank found but a single seed ball, and watched its growth day after day with anxious interest. One morning it could not be found and the youth was crushed in spirit. After a time the thought came to him that possibly some dog bounding through the patch had dislodged the precious seed ball, and the ground was searched. It was soon found some feet away from the parent stem. Twenty-three small seeds were well developed. From one of them came the Burbank potato which gave its originator his first grasp upon fame, and exerted an influence in determining his life work. Thus, selecting, in its simplest form, was the first of Burbank's methods. Thus fortune, in her most generous mood, decreed that one of the boy's twenty-three seedlings should be notable, that, in after years, the man might have courage to burn over sixty thousand plants of one kind at one time, because none of them were notable.

But, though artificial selection, practiced simply upon the forms resulting by natural variation, may do for the boyhood of the race or the individual, it is only the beginner's art in either case. As there is progress in mastery of the art, there must be richer material for its exercise. Nature has her sportive disposition under control; she has developed character; old allurements have lost their force; she must be given new temptations to lightness. Herein lie Mr. Burbank's chief methods. In their essence there is nothing new; but the daring, the subtlety, the volume and the patience with which they have been pursued have never been equaled, or even approached.

To create a disturbance in those parts of the plant world which he chooses for his operations is one of Mr. Burbank's first aims; to shape the form and direction of that disturbance is another; to select, from the myriad manifestations of such disturbance, those forms which possess new beauty, usefulness, or other significance to mankind, is the ultimate motive of his effort.

It is an old experience of mankind that plants and animals are changed in form and habit by transfer from native wildness to domestication. Relief from the old struggle and enjoyment of what may be called care and comfort promote variation. In the wild state variation is repressed, because only those exceptional variations which minister to success in the struggle survive. In the cultivated state variation is not measured by this cruel standard. This fact is of constant value in Mr. Burbank's work, and the importance which he attaches to cultivation and domestication, as a method in his work, cannot be better told than in his own words:

"There is not one weed or flower, wild or domesticated, which will not, sooner or later, respond liberally to good cultivation and persistent selection. What can be more delightful than to adopt the most promising individual from among the race of vile, neglected weeds, down-trodden and despised by all; to see it gradually change its sprawling habits, its coarse, ill-smelling foliage, its insignificant blossoms of dull color to an upright plant with a handsome, glossy, fragrant leaves, blossoms of every hue and with fragrance as pure and lasting as could be desired. * * *Weeds are weeds because they are jostled, crowded, cropped and trampled upon, scorched by fierce heat, starved or, perhaps, suffering form the cold, wet feet, tormented by insect pests or lack of nourishing food and sunshine. Most of them have no opportunity for blossoming out in luxurious beauty and abundance. A few are so fixed in their habits that it is better to select an individual for adoption and improvement from a race which is more pliable. This stability of character cannot often be known except by careful trial, therefore members from several races at the same time may be selected with advantage; the most pliable and easily educated one will soon make the fact manifest by showing a tendency to 'break' or vary slightly or, perhaps, profoundly, from the wild state. Any variation should be at once seized upon and numerous seedlings raised from this individual. In the next generation, one or several even more marked variations will be almost certain to appear, for when a plant once wakes up to the new influences brought to bear upon it, the road is open for endless improvement in all directions, and the operator finds himself with a wealth of new forms which is almost as discouraging to select from as, in the first place, it was to induce the plant to vary in the least."

Mr. Burbank's comments are given at such length, in part to emphasize the importance he attaches to this very old and very simple method of securing new plants. Of course, the penetrating reader will see that, though the method is simple, the application of it affords opportunity for insight, for keen discrimination, for acute perception. But all these would fail of notable results were they not actuated by a true conception of what is desirable—an ideal toward the attainment of which every effort is directed.

Beyond the elementary forms of disturbance in plant life which pertain to changes in the environment lie the methods which are popularly looked upon as more wonderful, viz., crossing or hybirdization. Without attempting any exposition of the results of this act, for they are simply set forth in the literature both of science and horticulture, it may be briefly suggested that Mr. Burbank has two main purposes in his recourse to cross pollenation. One is to promote disturbance, or, as it may be stated, to upset the equilibrium which has been established in the plant. Seedlings from cross-bred parentage show wide range in variation, while the seedlings from either parent without crossing may rarely depart from the established type. When, therefore, something more than can be secured by change of environment is desired, crossing is resorted to. The result is conflict between the dominant traits of the ancestry, and while these champions contend and, perhaps, disable each other, other traits of remote ancestry, long held in bondage by these dominant traits, rush to the front and display the prowess in some of the offspring of the unwonted parentage. Thus, there is spread before the propagator a new field, rich in strange forms, endowed with strange characters, upon which he applies the underlying principle of selection, wisely or otherwise, according to the depth of his insight and the acuteness of his perceptions.

The other purpose in crossing is the combination of characters so that the offspring may show, in one new entity, the desirable traits of both parents, or by continued crossing, accumulate such traits from several ancestors. Of course, bad traits are accumulated or intensified by the same process, so here again selection is invoked with fullest powers, to escape the evil and secure the good.

In his crossing Mr. Burbank has gone beyond all old conceptions of affinity within lines of botanical relationship and has secured startling results, but mention of them pertains rather to the discussion of his achievements than of his methods, and will appear in that later connection.

What, then, are Mr. Burbank's methods in cross pollenation or hybridizing? In this branch of his work the admiring multitude has scented magic and the conservative scientist has suspected deception. Both have thirsted for information as to methods. The most absurd reports have been current, which have deceived many. When it was stated that he gathered pollen by bucketsful and pollenated with gangs of Chinamen armed with dredges and bellows, he regarded as a jest what, no doubt, some credulous people believed. It is pertinent, therefore, that a careful account of Mr. Burbank's pollenating methods be presented to the reader.

The supply of pollen is generally secured by gathering a quantity of the anthers of the desired pollen parent, usually the day before the pollen is to be used, and drying them carefully. When in proper degree of dryness, the pollen is secured by gently shaking or sifting the mass of dry anthers over a watch crystal until its surface is dusted over with the pollen, the dust film appearing most clearly on the lower parts of the curved surface. Each genus, each species, and sometimes each variety, requires modifications which are suggested by experience. The largest quantity of blossoms of a single variety which Mr. Burbank has handled at one time is about a pint. He has found that properly dried pollen ordinarily retains its efficacy about one week; it might, perhaps, in many cases retain its power much longer.

The preparation of the blooms of the seed parent consists in removing about nine-tenths of the bloom buds when they begin to show the petal color, leaving, in trees which bloom freely, about one in ten of the natural bloom

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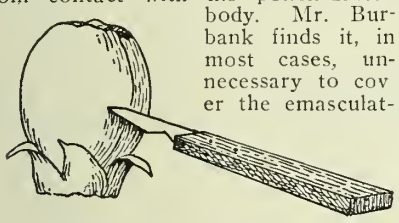
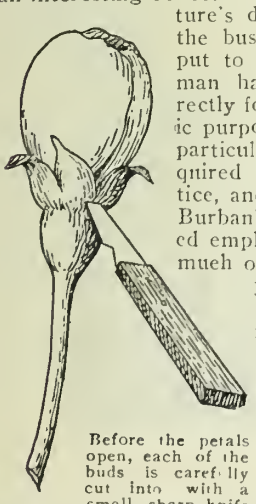
to be operated upon. This is for convenience of operating and to avoid the setting of too many seeds for the tree to properly perfect. Before the petals open, each of these buds is carefully cut into with a small, sharp knife blade, in such a way that the petals and a part of the sepals and all the attached anthers are removed as the knife makes its circuit, leaving the pistils exposed but uninjured by the operation. The accompanying sketches will assist the lay reader to an understanding of the process. The removal of the corolla balks the bees and other honey-seeking insects, either by the loss of color or by absence of alighting place, or both. The buzzing Archimedes finds no place for his lever and wearily goes his way, the honey unsipped and the pistil free from contact with his pollen-dusted body. Mr. Burbank finds it, in most cases, unnecessary to cover the emasculated bloom to prevent intrusion of undesirable pollen by insect agency.



—the petals and a part of the sepals and all attached anthers are removed; enlarged

He chooses for pollenation the time when the first hum of the bees is heard in the trees. He finds all conditions at that time most favorable, and believes the pistil is then in its most receptive state. The instrument of pollenation is the finger tip. Applied to the dusted surface of the plate, either by mere touch or a slight rubbing, enough pollen adheres. The finger tip is then quickly touched to the pistils of the prepared blossoms one after another. They welcome the pollen and the fructifying agency begins at once its journey to the ovule. No matter what comes now, on the wind or otherwise. The opportunity for outside pollen has passed. The touch of the finger has covered the stigma with the chosen element and sealed it safe from further intrusion.

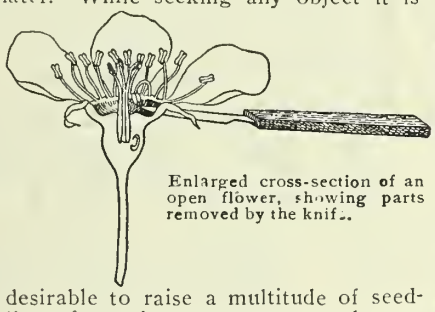
In his choice of the unaided hand as the instrument of pollenation, Mr. Burbank has not only vastly simplified and made more expeditious the act of pollenation, but there is also involved a profound tribute to the superiority of the trained hand in directness and delicacy for what lies within its unaided scope. Recourse to instruments and appliances is often essential, but, in many lines of human effort, the direct contact of the finger tip works wonders impossible with intermediaries. It is an interesting reflection that when Nature's direct agencies, the bustling bees, are put to flight, the human hand enters directly for man's specific purpose. Naturally, particular skill is acquired by long practice, and some of Mr. Burbank's most trusted employes have done much of this work for years.



Before the petals open, each of the buds is carefully cut into with a small, sharp knife blade. Enlarged.

The seed resulting from cross-pollenated bloom is, of course, gathered with great care; seedlings are grown, and the closest watch is kept upon their characters and habits from germination onward. The little seedling may disclose its combined parentage or give sign that it has drawn up something from the profound depths of the converging streams of its remote ancestry, before it reaches blooming or fruiting stage. Tokens which would escape the ordinary observer became clear as milestones indicating the life courses of the new plant to the skillful propagator. The art of selection begins early in the development of the cross-bred plants. Incalculable numbers of them may be destroyed for their too evident adherence to the old types, and only one or, perhaps, thousands be retained because they give promise of breaking away from such bondage. Whenever such selected seedlings are capable of budding or grafting they are thus introduced to the forcing influence of old plants of the same class and hurried to flower or fruit in this well-known way. A single old plant or tree may thus force its sap into the cells of hundreds of buds or grafts of new varieties, and can be conceived to be surprised at the multitude of strange forms and colors appearing on its branches as mother he would be at hatching a brood of bluejays.

Upon the motley throng of flowers or fruits thus secured selection again is exercised—selection from all points of view and toward ends still far remote, because desirable characters or traits may be distributed through many individuals. They must be combined and concentrated. Cross pollenation, now, between such individuals must be employed, and from this new shuffling of the cards another discriminating patient effort for arrangement into suits or sequences. It is a stupendous game of solitare which the capable hybridizer plays among the innumerable form, colors, odors, flavors, textures, growing, blooming and fruiting habits, which surround him as his reward for disturbing the natural order of things in the plant world. Amid this indefinite variety there must be in his mind no confusion. He is wise if he has had an object from the beginning—a conception of something new and desirable, perhaps a definite combination of objects to be attained. If he has a main object, say a certain color in a flower, he must pursue it faithfully, seizing upon the slightest trend in that direction No matter if the plant with the precious endowment lacks vigor, seize upon it still. Intensify the character desired and add vigor or other desirable qualities by later crosses or still further selection. But it is impossible to develop these other qualities in other sets of the same plants, select in each of the sets for a different end and thus preparing for combination later. While seeking any object it is desirable to raise a multitude of seedlings from the same cross, to have a wider field in which to exercise selection and to multiply the chances of a fortunate appearance.



Enlarged cross-section of an open flower, showing parts removed by the knife.

Take as illustration the group of forms including one of Mr. Burbank's most popular recent creations, the "Shast Daisy." It was built upon a combination of the grace of the Japanese, the tall, stiff stem and bold but coarse flower of the European and the whiteness and abundant bloom of the American species. After the combination was effected size was secured by selection, but the bloom was flat, with large center; next, selection was made for cup shape and superior whiteness; next, to secure doubling of the petals and to maintain size, and now fully double flower has been reached, of good size, but not quite so large as the largest single variety. This work included numerous cross pollenations and the growing of hundreds of thousands of seedlings, all of which passed beneath the quick eye of Mr. Burbank in the process of selection.

This writing has probably already wandered too far into the drouth of technical discussion to interest the general reader, and yet only a few hasty outlines of methods have been given. To fill in these outlines with the shading necessary to develop special features and the perspective desirable to show the mutual relations of the outlines would requihe a volume.

Treatises on color and perspective cannot make artists. There is, beyond the material and method, the creative brain, which employs them in a way to excite wonder and admiration. It is not otherwise with Mr. Burbank's methods. He has no secrets which he recognizes and guards as such. He has, of course, the teachings of many years' experience and of observation keener, more penetrating and more patiently pursued than any other worker in his line can command. He uses this endowment constantly and it grows with use. It needs no safeguarding, for it cannot be stolen nor can it be given away. It is non-transferable, just as are the mental penetration and grasp and the unflagging energy and industry which, using all these methods and materials as creative imagination conceives their suitability, is compassing achievements which are new and grand, both in science and horticulture. A sketch of these achievements will be the next undertaking in this series.

Prof. F. L. Washburn, late of Oregon Agricultural College, succeeds the late Prof. Otto Lugger as entomologist of the Minnesota state experiment station.

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tell us what you want, as your wants are considerably less than our supply. We have four grades of two-year-old apples and fully 50 varieties, practically the same in peaches, etc, etc. To tell you all we have is not worth our while—nor yours. We will be busy when you see this but will be glad to send you a catalogue, collection offers and to quote on your list of wants, and if there is anything we cannot furnish we will suggest what we have.

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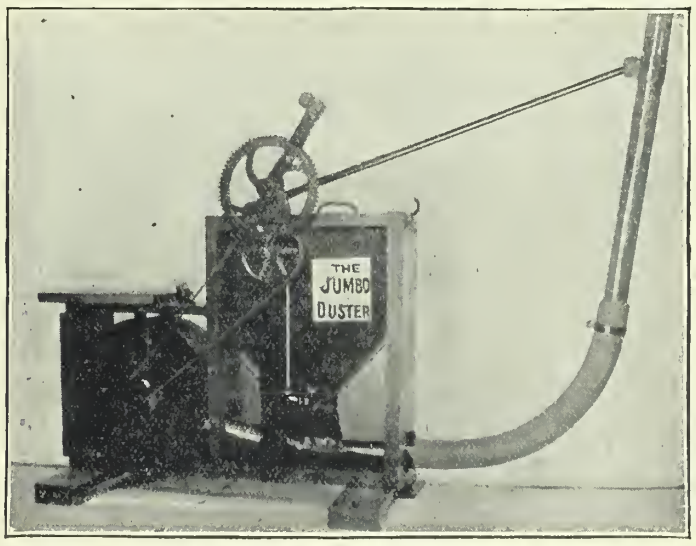

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Grape-Growing in Oklahoma

In concluding my last article, we had a young vineyard of one season's growth ready for pruning and constructing a temporary trellis—something to keep the vines up off the ground, facilitate cultivation and keep the stalks straight. The young vines become dormant as soon as the frost has removed the foliage in November. Pruning may be done thereafter until about March 15th, with priect safety, but it should not be delayed longer than the latter date. Please remember the young vines have been set one season and that the prime object now is to get the vine in shape for a light crop of fruit the second season thereafter. To do this let us cut back all vines to four buds of the previous season's growth, selecting them on a branch that has grown almost perpendicular. Let all prunings lie on the ground, to furnish feed for the pesky rabbit that might otherwise feast on the remaining portion of the vine, and thus interfere somewhat with our calculations.

Reset all missing vines; don't neglect this, as they are quite difficult to establish after the vineyard has attained several years' growth and the ground is full of roots. Trim the reset vines the same as you did when the vineyard was first planted, and do not expect the replants to bear a crop of fruit when the original planting comes into fruiting.

The vineyard is now ready for a temporary trellis. I wish to say right here, however, that a temporary trellis is unnecessary if the vineyard is in the ownership of any individual who has more money than time. I offer the suggestion only to those who are forced (as I was) to get through with the least possible expense, to the fruiting time, when I hoped at least to get a little reward for my effort and cash outlay. A temporary trellis that will do lots of good for the second and third years may be constructed in the following manner. Set a good, solid, seven-foot post, that has been sharpened, at each end of the row, four feet outside of the end vines and see that it is driven down perfectly solid. Now, a great many of us southwestern fruit growers have a ravine or two on our farms, on which are growing some persimmon trees that bear fine persimmons; they are as a rule too thick, so cut out about nine-tenths of them, and cut up the bodies into stakes two and a half feet long, sharpen the small end and drive them into the ground about a foot through the vineyard row, one for each five or six vines. Stretch a No. 12 black wire through each row, and staple it to the tops of the stakes. This will furnish a means of keeping the vines up off the ground and facilitate cultivation, prevent mildew on the foliage, and will also be the means of producing a reasonably straight trunk, providing the young shoots have been kept tied to the wire whenever their length would permit such an operation.

Now a word about tying young shoots. There are various ways of tying, but perhaps the most satisfactory and rapid method is by using green rye-straw. At the time when the shoots are ready to tie, the rye is out in head, and it requires but little to tie up the ordinary vineyard. Cut the green rye near the ground, place in small bundles, heads all one way; take a good handful, grasp it firmly near the heads with the left hand, spread the right hand in the form of a rake and strip off the surplus blades, then spread the straw out on a table where it will be exposed to the hot sun a few hours, when it will become quite tough.

After the straw has become properly seasoned, cut it into lengths of six or seven inches by tying into bunches of a good handful and chopping the whole bunch off on the ground by one stroke with a sharp corn-knife. After cutting off two lengths, still holding the straw near the heads, give the bunch a vigorous shake and all short straws will fall out, and the remaining portion may be cut again. Good, heavy rye will make three to four cuts.

Take a heavy twine string about five feet long, tie the ends together and place it around several of the smaller bunches, by means of a slip loop, put the string over your head and on your right shoulder in such a manner as will bring the bundle of straws up under your left arm. Now if you know how to use the straw you may go to tying.

If you do not know how to use it, I will do my best to explain the operation to you, although it is a difficult task to express it so that it may be thoroughly understood. While we are tying to a temporary one wire trellis it makes no difference as to position of the operator, but after the second and third wires are put up, the person doing the tying should face the side of the trellis posts to which the wire is stapled, and all shoots brought up on the opposite side of the wire, so that when the vine is again pruned and the surplus brush is to be pulled off, the wire will pull against the posts and no staples will be loosened in the operation.

To use the straw ties, grasp the young shoot with left fore-finger and thumb, make sure the shoot is on the opposite side of the wire from you. Pull out a straw from the bundle under your left arm, place it outside of and behind the shoot and wire so that it strikes the straw about the middle; release the hold with the left hand and grasp the lower half of the straw, bringing it to a horizontal position, holding the straw firmly against the shoot and wire, give the upper half that is in your right hand two rapid turns to the right around the lower half that is held by the left hand, and tuck the remaining portion that is in the right hand closely under the wire to prevent it from uncoiling. The straw in most instances will remain in position all summer, but is not needed after a few hours, as the young tendrils soon fasten themselves around the wire. When we pruned we left four buds. Now as we tie, we must break out all but two shoots, also all sprouts that come up around the base of the vine, and there are usually plenty of them if the vine has been planted deep. Don't break out any of the shoots from the four buds left until you are ready to tie the remaining two, for a high wind may beat you to them. Tie the two shoots to the wire in such shape that one will grow in each direction on the wire. Whatever you do, don't tie the young shoots with string. If you cannot get rye straw, use wheat straw, which is just as good except that it requires more labor to get the ties ready for use. If you can't get either kind of straw, get some raffia from your nearest florist. Keep the vines clear of the ground during the summer, cultivate thoroughly and often.

In some instances, where extra strong vines have been planted and given good care, a few clusters of fruit will set on the second season, but they are seldom perfect, and if left hang till maturity are usually devoured by the birds, so the better plan is to promptly remove all embryo fruit as soon as discovered and thus strengthen the vine for the coming crop, which will be nearer perfection. Being now convinced that you are going to have a good vineyard, one worthy of a first class trellis, it would be wise to provide the posts necessary to construct it and give them ample opoprtunity to become thoroughly seasoned. There is no economy in using a short post. A seven-foot post may be made to last twice as long as a six-foot by resetting when it rots off. It is not necessary to drive the posts more than eight or ten inches into the ground, and as they always rot off directly at the surface, the shallower they are put in the ground, the oftener they can be reset. In the construction of the permanent trellis, which should be done after the vines have been pruned the second season, the posts should be placed twenty-four feet apart, or a post for each three vines, and the side to which the wire is to be stapled should be flat and so arranged that the staples may be driven into the heart instead of the sap. Set the posts in a perfectly straight line in all directions; it adds greatly to the neat appearance of the vineyard. I always use a large sled to haul the posts on when distributing them through the vineyard, hauling enough in one load to fill two rows at a time. The runners are made of 6x6 material, does not pull heavy nor does it tear up the ground. It is but three feet wide, consequently does not come in contact with the vines. You might as well make one now, for you are going to need it to haul your spray barrel, your fruit from the vineyard and your barnard manure to the vineyard. Make it 3x6 feet, strong and durable, and use two horses to it.

In my next we will again prune the vines, finish our permanent trellis, tie the arms, spray, summer tie, plow, cultivate and gather our first crop of fruit and market it, and at a good price, too, if you will but follow instructions. There is an unlimited market for first class, properly handled fruit, but the grower who handles his stuff in a slip-shod, go-as-you-please manner, does no good for himself and injures to a certain degree the man who is trying at least to do the right thing.

C. A. McNABB.

GRAPE VINES

STARK GRAPE NURSERIES, Portland, N. Y., are in the heart of the famous Fredonia-Chautauqua Grape Belt, which produces the **best** vines of any locality in the U.S. **Immense stock—finest quality.** Prices **low** as those of any reputable grower. A full stock of CURRANT, GOOSEBERRY, BLACKBERRY, etc. **Stark Fruit Book, free.**

	One-Yr. No. 1		Two-Yr. No. 1	
	100	1000	100	1000
AGAWAM, reddish purple, good	$2.50	$22.00	$3.60	$33.00
BRIGHTON, red, high quality	2.80	25.00	4.50	40.00
CAMPBELL EARLY, early black	6.00	55.00	8.00	75.00
CATAWBA, large, dark red, good	2.20	20.00	3.30	30.00
CLINTON, black, much used for wine	2.00	18.00	3.00	27.00
CONCORD, "Old Stand-by"	1.70	15.00	2.50	23.00
DELAWARE, small red, quality unexcelled	2.80	25.00	4.00	38.00
DIAMOND, finest white	2.50	22.00	3.60	33.00
DUCHESS, white, medium size, fine quality	4.50	40.00	6.50	60.00
LINDLEY, red, very handsome, good	2.00	18.00	3.00	27.00
MOORE EARLY, large black, very early	3.00	28.00	5.00	45.00
NIAGARA, large, best white for market	2.80	24.00	4.00	35.00
POCKLINGTON, white hardy	2.80	24.00	4.00	35.00
SALEM, red, one of the best	2.50	22.00	3.60	33.00
VERGENNES, red, good keeper	2.80	25.00	4.50	40.00
WORDEN, richest, FINEST black	2.80	24.00	4.00	35.00
WYOMING RED, early, larger than Delaware	2.80	25.00	4.50	40.00

STARK BRO'S NURSERIES & ORCHARDS Co Louisiana, Mo., Portland, N. Y.

200 AMERICAN ARBOR VITAE, 1 to 1½ ft., $2.50, prepaid. ¾ to 1 ft., $2.00, prepaid. **$2.00**

At above prices we will ship either of the above 200 lots prepaid to any Express office in the U. S. Order as many lots as you want, but not less than one lot of 200. Each customer will be sent FREE a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreens s are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. A customer who had heretofore failed in tree planting says the pamphlet is worth "ten times its weight in gold." The Am. Arbor Vitae is undeniably the best all-around Evergreen for hedges, windbreaks, and screens. It lives on when others die. May be sheared to suit, tall or low, broad or narrow. ORDER RIGHT NOW, while the supply is large. Prepaid to any station. For $10 1,000 1 to 1½ ft. or 1,200 ¾ to 1 ft. prepaid to any address. Ask for our catalogue of hardy Evergreens etc.

EVERGREEN NURSERY COMPANY, Sturgeon Bay, Wisconsin

Begin Right, Mr. Farmer.

If you live in the central or northern states you want trees that will stand the extremes of cold, drouth and heat of these states. We raise just this kind of trees up here in the Blizzard Belt of northern Iowa. They are guaranteed hardy and vigorous.

An Orchard For 25 Cents.

For 25 cents in stamps we send an orchard of 10 assorted long scion Foster-mother roots, apple, plum and cherry grafts. 40 best assorted varieties for $1.00; 100 for $2.50. Our new catalogue beautifully illustrated, tells all about these and many other trees, shrubs, etc., and how to make your orchard pay. It is free Write for it.

Gardner Nursery Co., Box 132, Osage, Iowa. We pay the freight.

J.G.PEPPARD BUYS AND SELLS

MILLET, CANE, KAFFIR, POPCORN, SEED CORN, ALFALFA, TIMOTHY, CLOVER AND ALL KINDS OF **FIELD AND GRASS SEEDS**

1101 to 1117 West 8th, Near Santa Fe St., KANSAS CITY, MO.

THE PLANKINTON HOUSE, Milwaukee For thirty years the leadieg hotel of the Northwest, and today up-to-date in every particular

Has always had and still maintains a pre-eminent reputation for character and liberality of its cusine and service.

American plan, $2.50 per day and upwards. Europeanplan, $1.00 per day and upwards.

Cable, Plankcomee. WILLIAM P. COMEE, Manager. Telephone, 187 Grand.

GOOD PRUNING SHEARS.

During the past month we have sent out many pairs of the Levin Pruning Shears, advertised elsewhere in this issue, and have yet to receive a word of complaint. A. S. Perry, Yukon, Okla., says: "They are the 'powerfulest' shears made."

Order a pair at once. They are guaranteed by the manufacturer and by us. The price includes postage.

RIDER AGENTS WANTED to ride and exhibit sample bicycle.

1902 MODELS, $9 to $15

1900 and 1901 Models, high grade, $7 to $11

500 Second-hand Wheels all makes and models, good as new $3 to $8. Great *Factory Clearing Sale.*

We ***SHIP ON APPROVAL*** and 10 DAYS TRIAL *without a cent in advance.* Earn a Bicycle distributing catalogs. *Write at once* for net prices and special offer.

MEAD CYCLE CO.

Dept. 380-L, CHICAGO, ILL.

It has been reported that the peach crop of every county in Missouri has been seriously damaged, but a letter received from R. E. Culver, who has just inspected the orchard of the Oregon County Fruit Co., Koshonong, Mo., says that prospects for a fruit crop were never better than they were on March 4. Buds were entirely dormant at that date, and it would be an unusual thing for the crop to be destroyed after that time. Let us hope other localities will report the same good news.

SEED Oats 55c a bu. and up.

The cleanest, heaviest, best yielding oats are Michigan Northern Grown. Hammond's Nameless, Hammond's English Wonder, Czar of Russia and Michigan Wonder, the four best varieties. Rust proof, stiff straw, have yielded 220 bu. per acre. Catalog describing these oats and all other farm seeds free on request.

HARRY N. HAMMOND SEED COMPANY, Ltd. Box 82, Bay City, Mich.

St. Joseph Society Meeting

The February meeting of the St. Joseph Agricultural and Horticultural Society was one of the best which has been held for a long time. Many members were present, and the discussion of a paper on "Grape Culture," read by Mr. Cloud was very interesting. Mr. Cloud is a very successful grower, and his paper follows:

"With my past experience. I should plant nothing but one year old grapevines, and be careful to put nothing in but first-class stock, especially, so far as the roots are concerned. If possible have soil in first-class condition, both as to previous preparation, and as to moisture, and by no means too much of the latter. Make a ditch or furrow with the use of lister or large single shovel plow, going backward and forwards until it is one foot deep below the level surface. Deep planting is of prime importance. Take up your plant, separate the roots, put one-half each way in the furrow, spread roots as much as possible in bottom, cover up with top soil, with little pressing, unless ground is quite dry; put in deep enough so the top bed, left uncovered, will be two inches below the level surface; put them six feet apart in the row and then fill between plants, leaving a little depression in the hill; make the rows nine feet apart. If the ground is hilly, run rows lengthwise with side up hill.

"As to varieties, I would plant nothing but the Concord for a commercial grape. The Worden is uneven in ripening and bad to crack. Moore's Early is not, with me, a prolific bearer. A few vines of the Agawan are profitable for family use, as the hang on until Christmas, but the vines must be laid down and covered every winter.

"If you will allow me, gentlemen, I will say something at to the pruning and preparation of plants for first year's crop. I uniformaly get a profitable crop the next year after planting. I allow but two buds to grow from the stock the first season and prune off the laterals completely, allowing growth nowhere except at the tip end. Keep the soil in first-class condition throughout the entire summer; after every shower stirring the surface-soil to hinder the formation of a top crust, you will get vines in this way from eight to ten feet long, then pruning back during winter then tying up next spring, with the assurance of a heavy crop of grapes. It will give you the result of the first acre I planted about eleven years since, and managed as above.

"The vines cost $20, the wire $10. Our crop at shipping house brought $107, and the same patch has done well ever since. This matter was discussed during that time in your society here, and taken before a meeting of the State Horticultural Society, and the consensus of opinion at both places was that we had ruined our vines; arguing that the draught upon the roots was too great. We met that argument with what we yet think to be the common sense conclusion: That if you till so as to get a big top growth, you will get a correspondingly large root growth. And our experience from that time until this has borne us out in that conclusion.

"Now, as to pruning both winter and summer; winter pruning, we think, ought to be done as early as December. In no event should it be left until the frost is out of the ground in the spring. We leave nothing of last year's growth on more than from ten to sixteen branches, cut them back between the second and third bud. About the third year begin to cut the main stalk down to, or a little below the first wire, even though there be but one sprout on it, in which event leave six or seven buds. We use but two wires and tie the vines on the south or west side of the vine, owing to direction the rows may run.

"Summer pruning—In the event of drouth or poor soil, or if the vineyardist is too lazy to cultivate and there is but a small growth, but little summer pruning is called for, but if the growth is normal one pruning is needed. But even then, good common sense and a knowledge of the laws pertaining to served and exercised. Prune only in moist weather, when everything invites a healthy andv igorous flow of sap.. I once pruned a vinyard during a severe drouth, with heat 100 in the shade, the grapes being nearly full grown, and the landlord, with his help, were cutting away at a fearful rate; we stopped and suggested he would injure his crop, and he replied: 'Oh, mine vife knows better as dat. Mine vife was born in a winyard and worked in a winyard wilted on the vine, others matted and the next year the vines bore one-fourth the crop."

In reply to a question Mr. Cloud said he would keep the vineyard perfectly clean the first year. He prefers spring planting. Referring to the crop which brought $107 per acre the next year after planting, he said it not only brought this sum, but the fruit was so fine that he received about 2½ cents more per basket than did other growers. Mr. Cloud uses no implement in cultivating his vineyard which will go deeper than five-tooth cultivator.

D. A. Turner said Worden often ripens unevenly with him, and others made the same report.

Mr. Cloud was asked if he prunes roots of grape vines when he plants them, and he said he did not. As to using clover in a vineyard, he said he had tried this plan. The first two years after clover was planted he did not think the plan was a good one, as he had little fruit for the first two seasons. Afterward the vines bore good crops, and he now likes this treatment. He plows the clover under in the fall and harrows it down. Enough seed germinates to give a stand the next season. In mowing the clover he does not remove the hay, but leaves it to act as a mulch and to rot on the ground.

At the next meeting of the society Mr. Bloomfield will have a paper on "Peach Culture" and J. W. Bond will talk on "Strawberries." The society meets the last Saturday in each month at its rooms in the court house, St. Joseph, Mo.

Injury to Strawberries

Just before we go to press reports come in of great damage to new strawberry fields which were not under mulch when the December cold snap came. L. C. Wilson and R. E. L. Utz of the St. Joseph Horticultural Society report their new strawberry beds practically all dead, our beds being in better condition. Neither of the beds were under mulch when the severe weather came last December. Reports from a number of Kansas growers are to the same effect. The leaves of plants are all right. But if a plant is dug and the roots and crown examined they are found black and dead. Just how widespread is this damage is not known. Old beds are not so badly injured, but this damage to the young plants will materially reduce the crop of this season.

It is believed by some that the fact that the beds were not under mulch caused the killing. Others, however, hold to the belief that the dry season last year caused the plants to ripen their crowns and to prepare for winter. The late rains coming on, the roots and crowns were filled with water, and the sudden fall of the mercury to 12 degrees below zero killed the plants. This view is strengthened by the fact that the rots and crowns were killed, while the leaves still appear green, and by the further fact that in a nuumber of causes plants which were watered all last summer and kept in a vigorous condition were unhurt, and they were not mulched when the cold snap came. Our readers should carefuly examine their plants. There has been much damage and the crop has been still further shortened.

A NEW ROSE.

Ellwanger & Barry, Rochester, N. Y., are sending out a list of the new offerings for the coming season. This firm has introduced some of the very choisest roses and other ornamentals, as well as fruits of different kinds. Among the offerings of this season is a new rose for which great things are predicted. This is the Soiel d' Or (Golden Sun). It is a yellow rose, claimed to be perfectly hardy and of great beauty. It is perfectly double, of rich yellow color, with a delicate blush of pink. A good hardy yellow rose has been sougght for many years, and if thhis new offering, the Golden Sun, is all that is claimed for it, it will be welcomed by every lover of the queen of flowers. We will plant this rose this season and have much faith in the outcome, after it is recommended by Ellwanger & Barry. The list of new offerings by this firm will be sent free to all who mention the Western Fruit-Grower.

There is an increasing interest in dewberry culture, and this interest is justified by the splendid showing this fruit has made in past few seasons. Myer & Son, Brigdeville, Del., advertise a new dewberdy in this issue, the Premo Dewberry. This is claimed to be very early and has other good points. The firm sending out this dewberry is a well-known nursery, and has a splendid reputation. Dewberry culture has been so profitable in the last few seasons we know our readers are interested. See ad mentioned, and when you write for circulars, prices, etc., mention the Western Fruit-Grower.

WHERE THE CHERRIES COME FROM.

Friday a Tribune representative took a run out to the Baldwin nursery. Just at this season the cherry orchard of somthing near a thousand trees is the attraction. The trees are loaded with fruit and full if pickers, many men, women, boys nad girls from Seneca finding fairly remunerative employment gathering the fruit for market. The cherry orchard proper coveres several acres of ground, and the yield will realize for the owner in the neighborhod of $300 per acre.

In this nursery is the original tree from which came the noted Baldwin cherry that is destined to revolutionize that fruit. Its like for firmness and size and sweetness is not found in any cherry known to the horticulturist. It was propagated by accident, and its superiority discovered by the number of boys and girls that gathered around it at picking time—just to get a few cherries to eat—because they were more meaty and sweeter than fruit on the other trees. The tree was planted some fifteen years ago and it died above the grafting. A shoot came from below the graft and today is the strong and healthy tree from which the Baldwin cherry first came. It is a worldbeater and is in demand at all nurseries in the United States, a number of which are making a specialty of it. There are sixty acres in the nursery, and a trip to this busy field is worth the time of a busy and interested person.—Seneca Tribune, June 20, 1901.

Mr. Baldwin informs us that he now has about 4,000 Baldwin Cherry trees, strictly first-class, to sell at wholesale prices. Also 100,000 other trees, apple, cherry, plum, pear, apricot, ornamental trees, etc. On account of a fire which recently destroyed the printing office which was printing Mr. Baldwin's catalogue, he is unable to furnish catalogues, as he is too busy to publish a new catalogue at this late date. He will be pleased to quote prices, however, to all who write. Address S. J. Baldwin, Seneca, Kansas.

E. L. Adams, Marionville, Mo., in sending in a club of five new subscribers, said he got the list in fifteen minutes. This only goes to prove the truth of what we have said often, that a good club can be secured easily if only copies of the Western Fruit-Grower are shown to those interested in fruit culture.

"1902."

Results in 1901

97 per cent Perfect Fruit

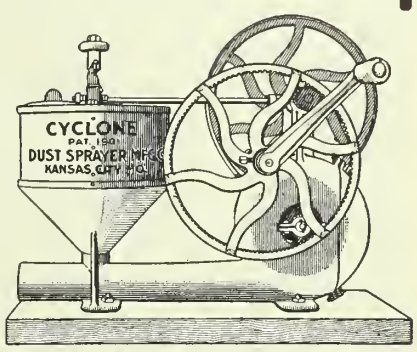
See Illinois and Missouri reports, the only states where process was introduced.

60 Per Cent IN COST OF SPRAYING SAVED BY

DUST SPRAY

Over the Liquid Method...

"I have visited Mr. Johnson's place for the purpose of examining the Cyclone Dust Sprayer. (I had already seen and examined the 1902 at the St. Joseph meeting, where it was on exhibition.) I expected to see a good machine. I saw it operated; IT MORE THAN MET MY EXPECTATION. It is THE MACHINE, and I take pleasure in recommending it to all practical fruit growers.—W. D. Maxwell."



For Catalogue and prices write

THE DUST SPRAYER MFG. CO.

Rooms 233 and 234 Rialto Bldg. KANSAS CITY, MO.

Peach Trees

80,000
1—2 ft., 2—3 ft., 3—4 ft., 4—5 ft., 1 year.

400,000
Dormant Buds

50,000
Apple, Plum & Cherry

Plain trees at plain living prices. Reliable trees not sold for less and money cannot buy them better. Enough said here. Our catalogue free.

Woodview Nurseries
Box 99. URIAH, PA.

Peach Trees
IN DORMANT BUD

ELBERTA, CHAMPION and CAPT. EDE PEACH TREES have become very scarce and are obtainable only in small quantities. To accommodate planters of commercial orchards and others who desire to plant Elberta, Champion and Capt. Ede in large quantities we are offering these sorts in dormant buds. These are trees budded last August and now having live dormant buds. The trees are well rooted, will be carefully packed and are cut back. The prices are f. o. b. your station. FREIGHT PAID BY US.

Lots of 500 for..... $16.00
Lots of 1,000 to 5,000, per thousand..... $30.00
Lots of 10,0000 to 20,000, per thousand... $28.00

THESE ARE PREFERRED BY SOME TO SMALL SIZE TREES OR JUNE BUDS.

New Haven Nurseries
New Haven, Mo.

Hart Pioneer Nurseries
FORT SCOTT, KAN.
Wholesale Growers of Nursery Stock.

Strawberry Gossip

By Wm. S. Crawford

IF strawberry plants are under mulch, it ought soon to be removed unless it is of such a character that they can grow through it. It is very unsafe to leave the mulch on until growth has started and then remove it, for such growth is white and tender and, if, after the mulch is removed and before it has time to get green and tough, a frost comes, it will be "cooked" like young vegetables. If it is left to grow up through the mulch, however, it becomes green as soon as it reaches the light, and this danger of freezing largely disappears.

It is the custom with many growers to hold back the late varieties a week or ten days by leaving the mulch on and letting the plants grow through it. This retards the blossoming and, by so doing, avoids the danger from frosts that might occur during the natural period of blooming, but the danger from later frosts is somewhat increased, as the ground has been kept cold and wet by the mulch and is unable to ward off a frost as it would be if it were drier and warmer.

It is at this season that the advantage of sandy land or thorough underdraining is apparent. Clay land and loam, unless drained, are now full of ice or icy water; there is entirely too much water, and a large part of it must be got rid of. Almost the only means of escape is through the surface by evaporation. This is a very chilling process, and by the time this water has been drawn up and evaporated the earth will still be cold, when it should be warm. If, by mulching, evaporation has been retarded, the sun's heat, instead of having merely the earth to warm, has also this great amount of water, which becomes warm more slowly than anything else; so, in that case the earth will remain cold also. When a frosty night comes, the earth being cold cannot give off heat to keep the air near its surface above freezing temperature, and, as a result, blossoms are frosted and possibly a year's labor lost.

In sandy or well drained land the water would readily escape downward, the sun's heat would have only the earth itself to warm, there would be comparatively little evaporation, and by the time of blossoming the earth would be many degrees warmer than wet land, and the danger from frost greatly decreased.

Nearly every spring growers who buy many plants are annoyed by their arriving at inopportune times. A lot will come from the South too early; another lot will arrive Saturday afternoon; still others, when there has been a drenching rain and the land cannot be stepped upon; and, late in the season, will come some that were packed too wet and have made in transit a white, tender growth, like celery. What is to be done? The plants may, perhaps, be kept for some time, but every hour they are out of the ground is decreasing next year's crop. There is just one way to handle such lots that is satisfactory. That is to heel them in. This is not very pleasant work, but when one gets used to it, it is easily and quickly done. Select a little piece of sandy land if you have any such. At any rate take land that is well drained. Unless it is in a muddy condition, spade it, pulverize it and rake it off. Then spat down a narrow strip with the spade and cut a ditch lengthwise through it about six inches deep and with one bank at an angle of 45 degrees with the surface. If it is early in the spring, say April, cut the roots of the plants back to three inches and facing the sloping bank, lay them along it, an inch apart and with their crowns level with the surface. Put an inch of earth on the roots, press it down tightly with the hands or foot, fill up the ditch and move backward six inches, spat the surface with the back of the spade, and cut a new ditch six inches from the first row for the second row. If the ground is muddy, merely hoe or rake off any rubbish, cut the ditch, put in the plants, and put back the earth without pressing it very much. If the ground has a frozen crust, lift the crust in the morning before it thaws, and the ground below will be found in excellent condition to work, the water having been drawn up into the crust. In the last case, throw a little litter over the plants to prevent the tender growth, if there is any, from freezing. If late in the season and the plants are in bad condition, shade them with a little straw until the white growth has become green.

Heeled in plants are much better for late planting than those that have not been heeled in. I have planted such plants while berries were being picked on the place and had them make a good growth. As soon as they have been heeled in and have recovered from the shock of being moved, they begin to send out white roots. If disturbed within a week or ten days, these young roots will be destroyed. On that account plants ought always to be left ten days or two weeks after being heeled in before they are moved. They may be left two months. When they are taken up, they will have taken hold of the ground and a large amount of earth will come up with them. They can then be transplanted even in hot, dry weather with scarcely a check. The best time to cut off blossoms or spray to prevent rust is while they are heeled in. This system of heeling in plants has been called by Mr. Farmer "the new strawberry culture." He thinks so highly of it that he takes plants upon his own place and heels them in and then transplants them later. I prefer not to do this unless it is necessary to take the plants up before the ground in which they are to be planted is ready, or unless the spring is so hot and dry that the plants cannot be set with any assurance that they will grow. In that case it is much better to take the plants up and heel them in and, if necessary, water them, than to leave them in the old bed till rain comes.

A strawberry plant, dug April 1st and thrown on the ground, with a shovelful of mud thrown on the roots and stepped on, will generally make better growth than the same plant would make if left till May 1st and then carefully transplanted. In an agricultural paper I recently read advice not to transplant strawberries too early, but to leave them till they got to growing well. No advice could be much worse than that. Very early in the spring a strawberry plant is dormant. All its strength is in the crown, and the leaves and roots do not seem to be much value, as, if all the leaves and most of the roots are cut off and the plant set out, it will promptly make new ones. It is almost like a bulb or potato. When growth begins this stock of vitality commences to be draw upon, and there is a constant drain upon it until the end of the fruiting season, when the roots and many of the leaves die and the life of the plant almost comes to an end.

If transplanted before growth begins, all the strength is in the crown to start and support new growth. If, however, growth has commenced, the store of vitality has been already drawn upon and there is less to start the new growth. Furthermore, the weather is warmer and evaporation takes place faster, while the supply of moisture is less, and, as a result, the plant is likely to wither and dry up. The earliest possible day in the spring at which the land can be prepared and the plants secured is the safest and best time to plant strawberries. If the ground had been plowed the fall before and could be made ready with only a disking and harrowing, it would be better yet.

In preparing land for strawberries, be sure to get a "solid bottom." If the land was plowed last fall, work it up with a disc harrow or other tool that will pulverize it four or five inches deep. If plowed this spring, harrow it till the horses have trodden on almost every foot of it or put a heavy roller on it. The surface should be well pulverized. If there are lumps mixed in the loose ground, the roots will go around them and get nothing out of them. If there are large cavities in the ground, the roots will run into them, get nothing out of them, and next year the plants over the cavities will probably not bloom at all. Large cavities, too, stop capillary attraction and cause the ground above them to dry out.

What is the best method of growing strawberries? The one that gives the largest margin of profit over expense. That answer is of no practical value

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Mr. L. H. Mahan, Terre Haute, Ind., sent me an order for 43,000 plants and wrote: "I am offered plants cheaper than yours, nearer home, but you have always sent me such NICE LARGE ONES I prefer to deal with you.

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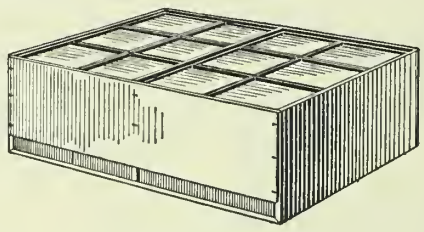

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in growing small fruits only the **strongest, best rooted, hardy, disease free** plants and vines should be used. I make a specialty of growing that kind. I guarantee every plant I sell. **Strawberries, Raspberries, Blackberries, Dewberries, Currants, Gooseberries, Grapes and Garden Roots.** I have all standard, tested varieties and many new and improved sorts. I give much attention to **Special Garden Collections** of small fruits Send for new and enlarged catalogue. **Mailed Free.** REMEMBER—I am a Wholesale Grower and grow all my own plants. Introducer of McKinley Early Grape.

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are not all sold and we want your orders for what we have. Aroma and Crescent all sold. Plenty of Warfield, Windsor Chief, Gandy, Haverland, Capt. Jack, Johnson's Early, Monitor, Bederwood, Lady Thompson, Stayman, Parker Earle, Bushcluster, Cobden Queen, Duffs' Excelsior, Gibson, Jerry Rusk, Kansas, Klondike, Lovett, Parson's Beauty, Rough Rider, Staples, Senator Dunlap, Splendid, Star, Sanders, Sample.

A small supply of most other sorts. Good supply of Raspberry plants. The new Cardinal Raspberry.

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Uncle Sam	$.50	$.75	$1.25	$6.00	$10.00
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Lester Lovett	.50	.75	1.50	6.00	....
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Bismarck, Nic Omer, August Luther, Gladstone, Clyde, 30 cents per 100, $1.60 per 1,000. Dozen sent by mail prepaid; for 50 by mail add 10 cents for postage; 100, 500 and 1,000 by express or freight as ordered, cash with order.

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Raspberry and Blackberry ...Plants...

Cumberland, the largest and best black cap, at $2.25 a 100; $20.00 a 1,000. Snyder blackberry, at $1.25 a 100; $9.00 a 1,000.

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1,000,000 Red Cedar for Spring delivery.

	Per 100	Per 1,000
One year from seed	$ .50	$4.00
Four to six inches	.75	6.00

By mail, 2 to 4 inches, 150 for $1; 4 to 6 inches, 100 for $1. Send for free catalogue.

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TRY THE

Mitchell Beauty Strawberry

It is coming to the front as a general purpoose berry. Catalogue free. Drop a postal.

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BERRY TICKETS

No book-keeping in the berry field. No trouble in settling with pickers. Every grower should use them. Prices very low. Write for free samples today. JONES, THE PRINTER, Goreville, Ill.

to most of us, and why? Because we have no system of accounting by which we know what the expense is. To my mind this is one of the weakest points with nearly all tillers of the soil. A manufacturer knows the cost of the raw material and labor and the other expense that must be charged up against every article he turns out. We horticulturists more than half the time have not even an approximate idea of the cost of production. We know that we have made a living and added so much to our bank account or paid so much indebtedness, and that is about all we do know. We could not tell whether we made the largest profits on the berries we grew in hills or those in matted rows; on the second crop taken from the old bed, or the first one from the new one; from raspberries or strawberries. Indeed, we do not always know but some of these crops were grown at no profit at all. In short, many of us do not know our business very well. A merchant who runs things as some of us do would soon go to the wall. It is only because fruit growing is as good a business as it is that many who follow it do not go into bankruptcy because of their lack of business methods.

I honestly believe that if a man would start now at the beginning of spring and keep an exact account of the expense connected with the growing of every crop, it would prove time well spent. It would give him an insight into his business. He would learn whence his profits come and whence they do not come. He would be in a position then to drop the unprofitable lines and develop those that, for him, are worth developing.

But to go back to the question, what is the best method of growing strawberries? It is not the thick matted row, nor, for most growers, is it the hill system. The matted row has had its place, but we are passing that stage. We have not reached the point where, as a rule, the hill system is best. Between these extremes are the various modifications of both, which are the best methods, one for some growers, another for others, according to their circumstances.

Strawberry growing has gone through somewhat the same stages of development in this country as other branches of fruit culture. The earlier growers adopted European varieties and European methods, which were distinctly those of the gardener. In those days strawberries were a luxury which few except the rich were supposed to enjoy. The high prices tempted many to go into strawberry growing, and it was soon found that our native varieties could be grown by much less careful methods than foreign kinds. Cheap lands, high wages and a market that was ready to take anything that was offered made the growing of strawberries on the rough, profitable. More people engaged in it. Strawberries became cheaper until they came within the means of everybody. Now the point has been reached where strawberries are almost one of the necessaries of life.

As the markets become older they become more critical. The fruit which the wife of a well-to-do business man would once have placed on her table with pride is now hawked about the streets by "dagos" and sold in the tenement districts. The profit in growing that kind of fruit has almost disappeared. It is the stuff gluts are made of. The only course that remains to growers is to produce fruit that is not in competition with this rubbish.

I do not believe, that as a rule, such fruit can grow in thick matted rows, and it is on that account that I say that system has outlived its usefulness. This is but one remove from nature's method of growing berries in fence corners crowded with grass and weeds. It makes little difference whether the "weeds" are dandelions, thistles or other strawberry plants. To produce fine fruit the plant must have food, moisture and sunshine, and it cannot get any of these in sufficient quantities if it is crowded. Nobody would expect ten cows to get a living on one acre, and nobody should expect ten plants to live and bear on one foot.

How far each grower shall modify the matted row system is a question for him to decide in the light of his market, his rent and the price of labor. If the land is very valuable and labor is cheap, as in the case of a man with a large family working land in a suburb of a big city, each acre must be made to yield the largest results without much regard to the amount of labor required. In that case the hill system or the hedge row is the best, for a big city will generally pay for such fruit. On the other hand a grower having cheap land, plenty of horses and but little help, and having a market which makes little distinction between fine fruit and poor, will adopt the method which will produce the most bushels with the least labor, regardless of the land required and almost regardless of the size of the berries. His method will be but a slight variation from the thick matted row.

Where one has not the time to do his work just as he would like to do it, a good method is that adopted by T. B. Terry, the great agricultural writer. He lets his plants run thick and in the fall, when he has time, goes over the patch carefully, narrowing the rows of uniform width with the plants about six inches from each other in all directions. This is not as good as never to let the surplus plants root, but it is a vast improvement on leaving the plants thick.

It is the hedge row, however, that presents the most advantages with the fewest disadvantages of any. By this is meant a single row of plants eight or ten inches apart, about one-fifth of which were planted, and four-fifths of which grew on runnners. This system requires but few more plants to the acre than the matted row system, but little more labor in planting, cultivating or hoeing, but does require labor in cutting runners. Its advantage over the hill system consists mostly in its requiring so many fewer plants, less planting and less cutting of runners. It will give almost or quite as fine fruit as the hill system and probably as many bushels to the acre. One man in Ohio has grown 400 bushels on one acre by this method.

Under the matted row system the rows are four feet apart, and the plants from two to four feet apart in the row, requiring from 5,400 down to 2,700 plants to the acre according to the running tendency of the variety. Under the hedge row system the rows may be three feet apart and the plants three feet apart in the row, requiring 4,840 plants to the acre. If set in rows both ways, the patch may be cultivated both ways until the last of June, all runners kept cut. Then each plant may be allowed to send out two runners in each of two opposite directions. These are strung along in the row, and one plant allowed to set on each. This makes a row of plants about nine inches apart. All other runners should be cut as soon as they appear.

For hill culture, the ordinary way is to have rows three feet apart and plants one foot apart in the row, requiring 14,520 plants to the acre. Then all runners are cut as fast as they appear. This is the aristocrat among methods. It is the favorite with the gardeners and amateurs who grow the finest fruit, but for practical purposes I do not think it is as good as the hedge row. Maybe there will come a time when it will be better. When the population has increased, land has become high, and labor cheap, it will perhaps pay to make rows two feet apart and set plants one foot apart and do the work by hand, but that time has not come yet for many growers.

This is the season when growers of small fruits are likely to be tempted into becoming growers of plants. When one can sell strawberry plants that would have been cut out to make room for the pickers, red raspberry and blackberry suckers that were in the way, black raspberry plants that came from self-layered tips, it seems like finding money. The temptation to sell plants has come, and often the grower yields to it. If he is located where a good local trade can be built up, it may be expedient to go into the plant business. If one is satisfied to do a local business, avoiding the expenses of advertising, postage, correspondence and packing. If, however, he concludes to do a general business, the chances are that disappointment is ahead of him.

As soon as he commences to reach out for distant trade, the margin of profit decreases, for the expense ratio runs up at an alarming rate. First, he drops his money in advertising. Probably every grower of small fruit plants has done this. There are only a few papers in the country that pay this class of advertisers, but there are hundreds that make one think they do until he has tried them. Then there are catalogues, postage, stationery, tags, labels, twine, moss, waxed paper, crates, burlap, and any number of other requisites that eat up the profits of the beginner as well as his previous savings. A few weather the storm and come out winners. Many lose their money and their reputation as fruit growers, and, after a trial of the plant business, quit it, lose what trade they have built up, and go back to growing fruit almost like beginners.

If farmers and village people who have a little spare land only knew how easy it is to grow enough strawberries for home use, more of them would certainly do so. Here is an example of what can be done.

In the spring of 1900 a business man of Knoxville, Tenn., purchased 500 plants, 100 each of Johnson's Early, Wm. Belt, Margaret, Marshall and Nick Ohmer, at a cost of $3.75 and express charges. After the fruiting season of 1901, he wrote us as follows: "The plants I got last year did very well indeed except the Johnson's Early, and the late freeze and storm we had when they were in bloom practically paralyzed them. I set out over 3,500 plants this spring from the other varieties, sold 500 and sold $27.00 worth of berries; used all we wanted, and gave two bushels to a church festival; used six quarts a day at the office as long as we had them, and it was given out that I had the finest lot of berries ever taken to town—and all this from the 500 plants."

When strawberry plants are trimmed for transplanting, the trimmings should not be thrown on the manure pile. If there should be rusty leaves among them, the rust spores are liable to be carried in the manure to a clean patch and make it rusty.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

NORTH STAR
...STAYMAN...

York Imperial, Ingram and other valuable apples, fifty kinds. CLIMAX, HUNT and other fine plums. KLONDIKE and other fine peaches. CARDINAL RASPBERRY an dother choice small fruits. Hardy, blight proof Pears a specialty. New catalogue free.

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TRY THE

Lady Garrison Strawberry

for profit; 13,000 qts. to acre. Before you buy plants elsewhere give me a chance at your order. I can supply any quantity, 1,000 to 200,000. Kansas and Cumberland Black Raspberries. Blackberry plants. Cata. free.

D. W. MOSBY, Dover, Del.

Choice Strawberry Plants

Plants grown on our rich Blue Grass lands of Kentucky can not be excelled anywhere. My stock is extra fine and true to name. A certificate from Entomologist with each order. If not pleased will return your money. 300 Haverland, Tenn. Prolific and Gandy, $1.00; per 1000, $3.00. Boswell Fox, Winchester, Ky.

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Choices new and staple varieties, by mail or express, guaranteed to arrive in perfect condition. We refer to many thousands of satisfied patrons during our 25 years as strawberry culturists. Our 1902 catalogue contains valuable information and tells about 47 choice varieties. It is authority on the subject. FREE, write for it today. M. CRAWFORD COMPANY, Box 1004, Cuyahoga Falls, Ohio.

Strawberry Plants

Our plant beds never went into winter quarters in a finer condition that last fall, and we never had finer plants. We have the largest stock we ever had to offer. Our first aim has always been to furnish the very best quality plants, true to name. We have also Raspberry and Blackberry plants and Asparagus roots. Our Second-crop Seed Potatoes was never finer than this season. Send for free catalogue.

J. W. Hall, Marion Sta., Md.

CATALOGUE OF

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Also bargains in Berry Crates and Baskets—20 years' experience. Address

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NITRATE OF SODA

THE STANDARD AMMONIATE FOR

MONEY CROPS

Ideal for top dressing two to six weeks after planting.

Corn, Fruit, Grass and Wheat

Send post card for Formulas and Free Bulletins.

WILLIAM S. MYERS, DIRECTOR
12 JOHN ST., DEPT. W., NEW YORK

OUR MAIL BAG

FROM NORTHEAST MISSOURI.

Am much pleased with the January number of the Western Fruit Grower; don't see how I could get along without it. I thought someone would surely get after Mr. Hall and others that are making such a fuss about the old reliable Ben Davis. Why, bless your life, we have got them that are fit to set before a king, and one of them would be all he would want, too, they are so large. The quality is all right, color O. K., and size immense, and I notice they are selling up with a good many of the so-called high quality apples. Long live old Ben.

We can endorse every word Professor Stedman says about spraying. We sprayed only twice for codling moth the last year and our apples were almost free from worms until about the first of September and then we commenced noticing wormy apples, and by picking time at least 75 per cent had a worm in. We can contract the scab, leaf curl of the peach and the canker worm, but the codling moth we are not so sure of, but will spray as Professor Stedman directs this season, if our orchard sets fruit; and will also band our trees and make it lively for what larvae make them their hiding place.

We did not have good success with our screen bands to protect from canker worm moth, but were too late in getting them on. I think I can kill the worms all right with one pint of Kedsies' mixture and forty gallons of water, if we get after them as soon as they appear, but it don't do much good to spray after they are one-half or three-quarters grown. Never have injured a tree by spraying, except a few that we sprayed with kerosene emulsion for plum aphis. The aphis were very bad and the regular strength did not seem to destroy them, so we used it a little stronger and scorched the foliage considerably, but it fixed the "varmints."

By the way, I never saw them so bad as they were last spring. I want to ask you if you ever saw a mature curculio in a plum. We sprayed our plums with the dust spray last season and could not detect the little Turks doing any damage, but when the plums began to ripen we would find quite a hole in one side of a good many of them and did not know how to account for it until we began to investigate and we would find the mature beetle in them and made up our minds they were the fellows that made the holes in getting out. There was no crescent mark on the plum and no work, as there is when the larvae works in them, but the beetle was there, but did no damage except to make the hole in one side. There was a little spot like a sting on the plum and we did not know what caused it, but it must have been the Turk. Is this a common thing?

Prospects for peaches all gone. Apples promise well. Strawberries can't be over one-third crop. Raspberries, where well cultivated, fine and promise a full crop. Blackberries very few new canes and those weak. Our drouth still continues and unless we get rain early in spring it will be hard on our trees. Wishing you much success, I am, Yours truly,

Wilson, Mo. J. E. MAY.

FROM NORTH CAROLINA

About a year ago a neighbor invited me to subscribe for The Western Fruit Grower.

I did so and have not been sorry, as you may see from enclosed remittance " a three years' subscription. Perhaps you do not know that we have a fruit country here that one of these days will be heard from. We have been slow in finding it out and indolent in taking hold of the fact, but here in the Blue Ridge Mountains 3,000 to 14,000 feet above sea level, with a temperature rarely touching zero in winter or higher than 86 in summer, we have the qualifications that produce fruits and vegetables of unusually good texture, flavor and keeping qualities. Our altitude in this latitude is what gives us the climate and our mountain ridges and valleys give us the diversity and also the air currents that give us immunity from frosts that kill fruit and and enable us to say that fruit "hits" here every year in properly selected locations. Finding Iowa winters too severe for me, I came here early in 1881 and after an observation of twenty-one years I can say that any one having sound apples at Christmas time need not take less than fifty cents a bushel at his door from the wagons ahat haul them down the mountains to sell to people who cannot raise them (though only thirty or forty miles distant) at a good profit and keeping up his peddling of apples, potatoes and cabbage as long as the supply lasts.

The varieties of apples such as Spy, Golden Russet Pippins, Morgan, Red June, Bell Flower, and others, as well as the Ben Davis do well here and peaches, nectarines, plums and small fruits do not fail to gladden us at the proper times. While the climate in general is rather cool for grapes, yet there are numberless sites where they will mature with wonderful sweetness and flavor. The flavor of our fruits and vegetables, together with the keeping qualities are things we brag of and as we have the whole South for a market for everything we can grow, there is room for many a would-be fruit grower here, where lands are cheap, to realize his dream of product and market, as well as an ideal home. The Western Fruit Grower is already responsible for some improvement in our care for trees and I trust that it may long continue in its good work with profit to its management.

H. M. BASCOM.

Highlands, Macon Co., N. C.

FROM DADE COUNTY, MO.

I have just finished reading your splendid paper, and must say that I have not read as much good common sense in so small a space in many a day. I live in a great fruit country, only twelve miles from the big 240-acre orchard of Paynes' Late Keeper apple, the crop of which sold this year on the trees for about $30,000, the purchasers furnishing barrels, gathering and hauling at their expenses. There are many other smaller orchards of other kinds of apples which sold for fancy prices for the last three or four years. This is certainly a good time to sell fruit trees. I find only one drawback, and that is scarcity of stock feed from effects of last summer's drouth, and snow on the ground, so that farmers can't pasture their wheat. This gives them the blues. Had it not been for a splendid fruit and wheat crop last season, what would they do? One good, old farmer to whom I sold a good bill of trees told me he "expected to live and die in old Dade, and would never sow another crop of anything but wheat and apple trees, which always hit." I think his head about level. I think it safe to say there will be 5,000 to 10,000 acres of orchard planted in this county this spring and next fall. If all persons having as many as two or more trees will take your valuable paper and follow the advice therein, they will be many times repaid. If you will send me some sample copies I will try to get you some subscribers. Send blank receipts.

Wishing you great success in your noble work, I remain,

Yours very truly,

WM. KELLY.

Dade County, Missouri.

A letter from Bird Webster, Siloam Springs, Ark., dated March 12th, says the long drouth there was broken on the 11th by a steady rain of 24 hours, putting soil in fine shape for the spring work. Elberta peaches and other fruits are in the very best condition and promise bountiful yields. Let us rejoice with our Arkansas brethren over the prospects for peaches.

READY FOR SPRAYING.

Appreciating the fact that some growers have much trouble in properly preparing their spraying mixtures, the Rippley Hardware Co., Grafton, Ill., has arranged to furnish a number of preparations which are ready to mix with water and then to apply to trees. A number of preparations are furnished for insects, and this well known firm puts its reputation into the goods. A catalogue and prices will be sent free to those readers of the Western Fruit Grower who ask for some. When writing do not fail to mention the Western Fruit Grower.

APPLE TREES.

In this issue A. C. Griesa & Bros., Mt. Hope Nurseries, Lawrence, have an advertisement in which special emphasis is laid on their stock of apples for commercial planters —Ben Davis, Gano, Jonathan, Missouri Pippin, etc. This is a reliable firm, and our readers will receive fair treatment at their hands. See their ad and write at once. It is late now, and there is no time for extended correspondence. Send a list of what you want when you write, and get prices and other information necessary.

J. G. Harrison & Sons, Berlin, Md., report a stock of York Imperial, Jonathan and other desirable apple trees are still on hand. This firm will send catalogues to those of our readers who ask for same and will be especially pleased to help put orchards of these splendid varieties of apples.

Scott Spray Pumps

Are the simplest in construction, but THEY DO THE WORK. They are made entirely of brass and are always ready for use.

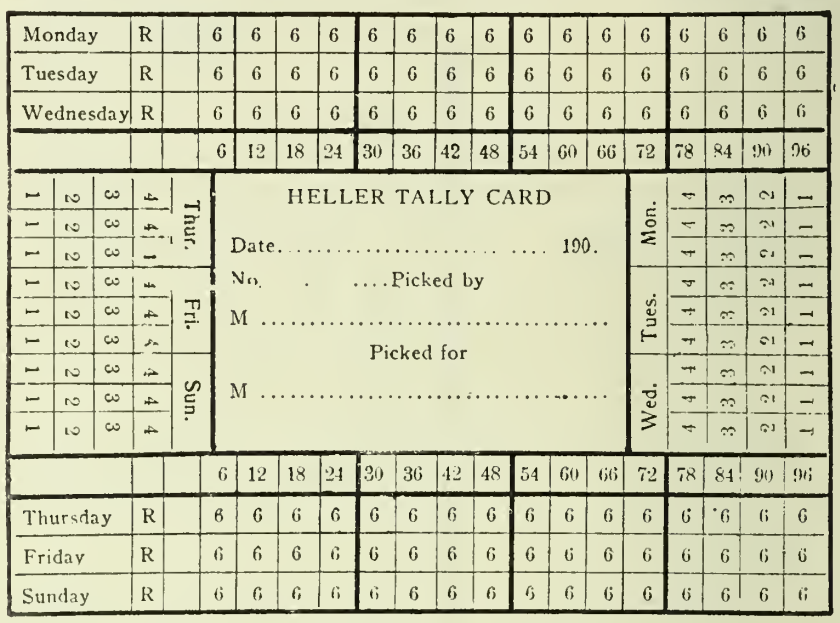
We Guarantee Them for 5 Years.

Will throw good spray 40 feet—very fine spray 25 feet. Sent prepaid anywhere in U. S. or Canada for $5.00. Send for our booklet telling how to spray trees. It's FREE.

The secret of its power is in the ball valve.

Marysville Manufacturing Co.

22 S. MAIN ST. MARYSVILLE, OHIO.



Berry Pickers' Tickets

This is one of the best styles of tickets used. It was originated by F. A. Heller, Edwardsville, Kan., and was used by many readers of hThe Western Fruit Grower last season. hTe cards come in two colors, an original and duplicate, one for the picker, the other for the grower. One card is placed directly over the other and both are punched at one operation to correspond with number of boxes picked. hTe cards thus show the same record, and there is no chance for fraud. The grower and the picker each have a record, there is no transferring from one eard to another, and no chance for error.

$1 buys 100 Cards of each color, mailed postpaid. Punch will be sent also for 50 cents additional. Order early.

Western Fruit-Grower, St. Joseph, Missouri

NOTES.

Nurserymen are selling dormant peach buds, so great is the demand.

"I would not do without the Western Fruit Grower if you charged $5 per year."—W. A. Jordan, Jerome, Arizona.

A letter from R. DeGarmo, Oswego, Kan., says there will be a light berry crop in that section this season. Prospects for peaches were all right up to Feb. 24, although there were not nearly so many fruit buds as usual.

E. V. Kinnil, Canon City, Colo., says the Western Fruit-Grower is the best paper he takes—and he takes several good ones, too. All fruit with him is raised by irrigation. Peach trees which were buried in the fall are in prime condition.

Please book me for three more years for the Western Fruit-Grower. I expect to take it forever. I take three other farm papers, but the Western Fruit-Grower is pre-eminently our paper, and beats them all.—A. W. Rogers, Wathena, Kan.

The new laboratory building of the Department of Horticulture, Iowa Agricultural College, was opened with appropriate ceremonies on the night of Feb. 22. This new building will increase the facilities for doing the good work which is planned by this department.

Can it be possible that the entire business of the country merchant is going to revert to the catalogue houses? With free mail delivery and the parcel post which is coming before long, such firms as Marvin Smith Co., of Chicago, who are always reliable, will be in almost personal touch with the whole country.

Several of our nurserymen advertisers have been compelled to drop out this month, their supply of stock having been exhausted. Never was there such demand for nursery stock. Holsinger Bros., Rosedale, Kan., have sold 200,000 raspberry plants through their ad in the Western Fruit Grower alone. Every advertiser reports excellent returns.

James M. Rogers, Elsberry, Mo., advertises a fruit farm for sale in this number, to which we call special attention. The mill lands along the Mississippi river are among the best orchard soils in the world, and some of the most profitable orchards in the country are situated there. Mr. Rogers says the place is offered at a bargain, and we have no doubt tthis is true. The location is excellent, being near the St. Louis market, and also contises Silver Laced Wyandotte chickens and eggs. A number of our readers have patronized him, and those who are interested in good poultry should see his ad and write him.

The National Association of Nurserymen will meet at Milwaukee next June. Nurserymen who will attend the convention will be interested in the advertisement of the Plankington House in this issue. This hotel is recognized as one of the best, and will be the stopping place of many of the visiting nurserymen. Rates are reasonable, both European and American plan, and our nurserymen readers who will attend the convention should engage accommodations at once, and avoid the experience of the last two conventions of the association. Write for accommodations, and mention the Western Fruit Grower when you write.

Trees

Apple, Peach, Pear, Plum and Cherry. Shade and Ornamental Trees, Grapevines, Small Fruits, Evergreens, Shrubs, Roses and Bulbs. Correspondence solicited. C. FRANZ & SONS, COZADDALE, OHIO.

Strawberry PLANTS

We have plants enough left to fill orders. Send your order at once, as time is short.

O. E. Cox, Columbus, Neb.

It is handy in sickness and funny in wellness, and saves your frisky horse or wife from a runway.

W. E. Embry, Dade City, Fla., writes: "Our section is shipping about 400 bushels of strawberries per day. Our principal varieties, which must be good shippers, are Lady Thompson, Noonan, Hoffman, Michel's Early, Excelsior and Brandywine. Klondike is grown some, and bids fair to be very popular. We have oranges still on trees, and bloom are almost open for next crop. Peaches promise to have as big a boom here as did oranges before the freeze of 1895. We ship to New York, where our fruit brings good prices. Our leading varieties are of the Persian type, Bidwell's Early and Late, Angel, Waldo, Jewell, etc. We are thirty-eight miles north of Tampa."

SPRAYING AND SPRAYERS.

The use of a sprayer to exterminate insects on trees and plants is a necessity where profit is to be considered by a fruit and vegetable grower. The Comet Sprayer is a simple device and can be used from bucket or barrel and throws a continuous stream or spray fifty feet. Its uses are manifold about the premises for putting out incipient fires, washing windows and buggies, sprinkling lawns, plants and crops, as well as for destroying insects. It is worth our readers' while to send to its maker, H. B. Rusler, Johnstown, Ohio, for an illustrated catalogue and learn the value of the Comet Sprayer. Please mention the Western Fruit Grower when writing.

Asked and Answered

N. S. Hoffman, Ionia, Wyo., wants to know who now makes the Esterly self binder, the firm which formerly made same having sold to another firm. Who can answer his query?

E. C. A., Long Jack, Mo.—What is the best time to jar for plum curculio?

In early morning, when insects are semi-dormant on tree; they will then fall to the ground and can be picked up and destroyed.

T. W. G., Wier, Tenn.—What is the best fertilizer to use in an orchard? (2) Is it advisable to sow a young orchard in red clover?

Answer by Major Holsinger: (1) Barnyard manure. (2) No. A young orchard should be thoroughly cultivated until six or seven years old.

I. C., Bushnell, N. C.—Can you tell me where I can buy pure chemicals for spraying purposes?

Missouri Valley Seed Co., St. Joseph, Mo., Whitelaw Bros., St. Louis, Mo., and Heller Chemical Co., Chicago, Ill. all advertise in the Western Fruit Grower and either will be glad to quote prices.

Napl. DeMers, Falls City, Neb., wantst to know of a book on the subject of propagating and raising evergreen trees. We know of no such work; do any of our readers? There is considerable secrecy about the propagation of seedlings of certain kinds of evergreens. Who knows of a book on the subject?

Edward Gabus, Florissant, Mo., wants to know the correct name of a potato which he says was common a long time ago, and which he describes as follows: A long, deep red potato, with large, deep eyes, about 10 inches long, of about same size the entire length; of not very good quality, but a heavy yielder. Mr. Gabus says he has heard it called Long Red and California Long Red. He wants to know the correct name and where he can secure seed Who can answer him?

F. H.—(1)—There can be no objection to resetting the ground from which you dug the Willow Twigs, provided you cultivate the ground thoroughly. (2) Top grafting of trees in the West is attended with difficulty owing to the hot, dry winds of summer. It will be more satisfactory in the end to grub out your Lawner and replant. (3) Arkansas black is yet new and not generally disseminated. It has some friends. I should prefer to plant the old standards, Gano, Ben Davis or Jonathan. FRANK HOLSINGER.

A reader who signs himself "X" wants to know if there "is a seedless pear called Sudduth, controlled exclusively by Augustine & Co., Normal, Ill." In reply we will say there is such a pear, the propagation of which is controlled by the firm named. It is not entirely seedless, but on the old trees, with little opportunity for cross-fertilization, the fruit has few seeds. We will say further to this unknown correspondent, whose letter was not signed and bore no postmark, that anonymous letters are usually unnoticed—and rightly so. Don't write anything you are ashamed to sign; it is not necessary that name be published.

N. E. S., Mound City, Kan.—My currant bushes drop their fruit, the dropping commencing when the berries are about half grown. I have never been able to find any worms on the bushes, and the leaves are unaffected. What causes the trouble?

Answer by Major Holsinger: The trouble is the conditions of the plants. The severe freezing of winter, followed with the terrible drouths, has caused the trouble. All the currants two or more years planted with us are practically in this condition. If you would have currants you must renew your plants. The currant cannot thrive in a dry, hot climate. We are too sar south and west to succeed well.

E. C. Allen, Lone Jack, Mo., sends some roots of apple trees which are affected with root knot, and asks the cause of the disease. The trees bore last year for the first time, and many have died. Mr. Allen wants to know if the disease was in the ground, in the stock, or was it in the nursery stock when planted. It was more than likely in the nursery stock, as the disease is one which affects nursery stock most generally. Its cause and methods for its prevention are not well understood as yet. Mr. Allen wants to know if it is advisable to plant other trees in the vacant places. Nurserymen claim that soil which is infected will transmit the disease to newly planted trees, therefore it would be unsafe. Just how far away from the diseased spot trees can be safely planted is not well estahlished. A number of experiment stations are studying this disease at the present time.

F. I. D., Dallas City, Ill.—I have some sod ground which was plowed early last fall, and I would like to set enough strawberries on it to furnish a good test of the different varieties. Will the cut worms cut them off? Is there any way to prevent this? Will it do any good to work hard wood ashes into the soil? I don't like to wait another year.

Answer by Major Holsinger: Should the cut worms be numerous you will doubtless experience trouble from the worms. You can do much by careful watching, destroying individual worms. This can be done by looking over your plants and noting where they enter the ground after they have cut a plant. But cutting a leaf the plant still has sufficient vitality to recover, sending up other leaves. The grub worm is a more formidable enemy to the strawberry than the cut worm, as they work among the roots of the plants and they will likely be present in the sod ground. Wood ashes are a good fertilizer for the strawberry, but of no value as a worm destroyer.

M. M. S., Ada, I. T.—What is the value of cottonseed meal as a fertilizer for garden truck, especially tomatoes? I know bonedust cannot be beat, but I am raising only a small patch, and do not feel justified in ordering a quantity of fertilizer, and have the cottonseed meal at hand.

Answer by A. D. McNair, Southern Pines, N. C.—Cottonseed oil is a good fertilizer as far as it goes and will show its effect on tomatoes or any other crop, but it is not a complete fertilizer. It can be made complete, however, by the addition of acid phosphate and muriate of potash or the dissolved bone may be used to replace the acid phosphate. A good formula for an acre of tomatoes is as follows: 150 pounds nitrate of soda; 250 pounds cottonseed meal; 400 pounds acid phosphate; 140 pounds muriate of potash; total, 940 pounds of fertilizer, which will analyze about 4 per cent of nitrogen, 6 per cent of phosphoric acid and 7 per cent of potash. If, however, the writer has the cottonseed meal on hand and does not feel able to buy other fertilizers, he may use 1,000 pounds of the meal per acre spread broadcast and harrowed in. Cottonseed meal is worth from $20 to $25 per ton for fertilizing purposes.

E. N., Cambridge, Minn.—What formula is the best for spraying potatoes to destroy the potato bugs? How about using the dust process? Would it be effective and easier to apply?

Answer by Prof. Stedman—Potato bugs can be readily killed by spraying or sprinkling the plants with any of the arsenical poisons. In this case the poison should be made strong; one pound of Paris green in fifty gallons of water being the best amount. One can dust Paris green upon the potato plant with good effect provided it be done early in the morning while the dew is still upon the leaves. In that case one pound of Paris green should be thoroughly mixed with three or four pounds of flour.

J. B., Cimarron, Kan.—(1) Is it worth while to spray young apple trees just coming to bearing? If so, what should I use? (2) What harm do the leaf rollers do on the trees and should we pick off all the balls?

Answer by Prof. Stedman—(1) It would be well to spray apple trees that are just coming into bearing in order to keep the insects in check and thereby prevent their undue multiplication later on. The following formula for codling moth will answer for a number of biting insects and it would be well, therefore, to use this mixture two or three times at least, although four times is the proper number for fighting the codling moth: Paris green, one pound; fresh stone lime, three pounds; water, one hundred and seventy five gallons. The first spray should be applied within one week after the blossoms fall and the others eight to ten weeks thereafter. (2) The leaf rollers will multiply upon young trees and do damage when their numbers become sufficient, but the spray for codling moth, if done thoroughly, will undoubtedly hold these in check also.

J. P. K., White Cloud, Kan.—Last season I had an experience with borers that I had never heard nor read of. Borers got in quite a few of my young trees between the ground and the trunk at least a foot tor foot and a half from the ground. I dug into lots of them and took the borers out. The only thing I noticed about the tree to make me think the borer was there was ruffled or dry bark; looked a little like it might have been sunscald or something like that, but upon examination I found them as above. What is the best preventive?

Answer by Prof. Stedman—One should follow three methods in order to keep the borers out of an orchard. Early in the spring, and as often as is necessary, one should wash the trees with some kind of a wash. A good one is made by dissolving two quarts of soft soap in one-half a bucket of water and then thicken the same with lime so as to make a thick whitewash. In the fall, some time during September, one should go through the orchard and by means of a sharp knife dig out the borers. The use of wooden wrappers is good if put about the young trees especially. They should be pushed down into the ground and the tops stuffed with cotton so as to prevent the insects getting down into the ground.

The Western Fruit Grower, St. Joseph, Mo.—I have just bought a farm and the orchard and vines are in bad condition. (1) Please advise me what I should do with old grapevines that have been neglected. (2) My apple trees have had no care and they are full of borers. Should I cut them out at once or should I wait till June? Would it do any good to apply a wash to the trees now or should I wait till June? (3 Also please tell me the best crops to grow in an orchard.

Answer by Prof. Stedman and Howard, the former answering concerning the insects: (1) Old neglected grapevines should immediately be pruned, so as to renew the vines as soon as possible. If there are any canes of last year's growth coming up from near the ground leave them and cut out the older parts. If the vines are still reasonably vigorous, leave as many as three of the new canes to bear fruit this season, and also cut back two or three more of the new canes that start near the ground to stubs three or four inches long to produce the fruiting canes two years hence. For old, neglected apple trees the treatment is to clean out all of the dead branches, sawing them off up close to the body of the tree and painting over the wounds with ordinary paint; scrape off the old dead bark from the trunks; clean up all litter and burn; and cultivate. Also spray. (Send to Expt. Sta., Columbia, Mo., for spray calendar.) (2) The best all-around orchard crop is cowpeas, unless the soil is already so rich as to cause too rank a growth of the trees. If trees are growing too fast to produce fruit, the orchard may be seeded to clover for two or three years. (2) The borers should be dug out at once, if this was neglected in September. You should also wash the trees with a wash, as described in answer to J. P. K.'s query. If the trees are young, wooden wrappers should also be placed around them.

J. P. F. Vail, Mils, N. Y.—I am very much interested in the Western Fruit Grower, being a subscribed of only a year, but think it the finest fruit paper I ever read. I live in Fulton County, New York state, six miles north of the famous Mohawk Valley. I think of going in the fruit business and need a little information. (1) I, having selected a hill sloping to south and southeast, would like to know from some experienced orchardist if it is adapted for apple trees. It is light loam to gravel soil; produces 100 bushels of ear corn to acre. (2) What kind of apple trees should set? The apples raised in this section are Red Astrachan, Baldwin, Hubbardston, Northern Spy, Rhode Island Greening, Roxbury Russet, Sutton, Rome, Yellow Transparent, Spitzenberg. (3) How would you cultivate the ground, and what kinds of crops to sow for plowing under? (4) What time is best to trim apple trees; in what month? (5) How close would you set the trees? Would you plant close and when crowded cut out every other one? (7) I have another side hill sloping to the south. The soil is a light loam. Would it be adapted to pears? The pears raised in this section are Bartlett and Anjou? (8) What kinds of pears would you plant for profit? (9) How far apart would you set pear trees and how cultivate? (10) What kinds of cherries would you plant and how close to plant? (11) What kinds of plums would you plant and how close to plant? (12) Would any of Missouri apples, pears, plums and cherries do well in this part of New York state? If so, what kinds? Will Ben Davis apples do well up here? (13) Would the Kieffer pear do well up here? (14) Will cow peas do well up here to plow under? (15) Which is the best raspberry? (16) The best blackberry?

Answer by N. O. Booth, assistant horticulturist, Geneva Experiment Station, Geneva, N. Y.—(1) It is difficult to say from your description whether the field you refer to would be adapted to orchard purposes or not. The question of slope is not of prime importance in most sections in an orchard site. If the soil is well drained and as rich as its production of corn would indicate, I know of no reason why it should not make a good orchard site. (2) The question of what varieties to plant involves two factors: First, what does the market demand? Second, of those varieties which sell well in your section, which is the most profitable? If you are some distance from your market you had better confine yourself chiefly to winter varieties. As a list of apples for you to choose from I would suggest the following: Sutton (Beauty), Rome (Beauty), Baldwin, Rhode Island Greening, Hubbardston, Northern Spy, The Ehopus (Spitzenberg) and Newtown Pippin (Pippin), are two of the highest quality apples raised and in some parts of New York state are exceedingly profitable, but they are not planted as extensively as the kinds already mentioned. Of the list which you mention, the Yellow Transparent and Red Astrachan are good for local markets, but will not bear much handling, and this is particularly true of the Yellow Transparent. (3) The answer to this question would depend wholly upon local conditions, and has been quite fully answered for your section in bulletins published by the Cornell Experiment Station, Ithaca, N. Y. (4) Apples may be pruned at any time when the tree is dormant, from the time when the leaves fall in the autumn up to the time when the buds commence to swell in the spring. (5) This depends wholly on the soil, climate and season. Soils that heave should not be planted to trees in the fall Some falls there is no good planting weather after the leaves fall, and trees should not be taken from the nursery before this time. In seasons and on soils where fall planting can be done safely it is preferable, as the trees will be further advanced than trees planted the following spring, and on most farms there is more time in the fall to attend to this work properly. (6) The distance apart varies with the variety and somewhat with the soil, as trees will make a stronger growth in some locations than in others. Most growers in New York state plant from thirty to forty feet apart. There have been a few experienced orchardists who have made a success in planting trees close, and thinning when they begin to crowd each other, but usually the grower who plans to do this lacks the nerve to cut when the time comes, and the result is a brush patch. (7) I cannot say; probably. See answer to question 1 (8) The Bartlett seems to be the favorite with most of the pear growers of New York state. (9) About twenty feet apart. Cultivate same as for apples. (10) What was said in answer to question 2 as to selection of varieties of apples applies to all fruits. The standard commercial sorts of cherries in New York state are Montmorency Ordinaire, English Morello and Early Richmond. I would not advise you to plant many sweet cherries unless they have been tested for your section. (11) Some of the leading sorts raised are Bradshaw, Lombard, Reine Claude, Bavay and Italian prune. (12) Desirable varieties of fruits are so different for different sections that an answer to your question can only be given for those fruits which are grown both in the west and east. A certain number of the standard western sorts of the various kinds of fruits have been grown in the east, and some of them do quite well, although this is not usually the case. Amongst apples in particular, it is very seldom that any variety is standard for more than one fruit district. None of the varieties which are raised in Missouri would probably give you any better results than the varieties I have mentioned. The Ben Davis apple has been planted in many parts of New York state, usually with good results from a financial standpoint. However, during the past few years there have been many complaints made against the Ben Davis on account of its quality. This does not yet, however, seem to have affected the price. It may do so in the future. (13) The Kieffer pear has been very extensively planted all over the United States. Most of the Kieffer pear orchards in New York have been profitable. The chief demand for Kieffers is from the canning factories and preserving, etc. There seems to be an opinion, however, amongst a great many of the practical growers that the Kieffer pear has been rather over-planted in this section, and that the price is liable to collapse. (14) You will find this question very thoroughly answered in the bulletins to which I have referred you. (15) There is no best raspberry. Different varieties are best for different sections and seasons. Of the blackcaps try Palmer, Mills and Greggs. Of the reds try Cuthbert and Turner. (16) In the blackberries, as with the raspberries, there is no best variety for all sections. You will probably get very good results from Eldorado and Agawam, or Snyder.

NOTES.

A. H. Buckman, Topega, Kan., says peach peach buds are mostly killed in that vicinity. Even the most hardy sorts are in bad shape, so far as fruit buds are concerned.

Have you noted the increased attention given to small fruits, particularly strawberries, in this issue? We have some other improvements along this line in prospect.

Apples promise well in Indiana, according to reports received by Secretary Flick. The buds are not so numerous nor so strong as last year, but are healthy. Peach buds are nearly all killed, and berries of all kinds are reported as being in poor shape for a crop.

Kansas horticulturists are always hopeful. Judge Wellhouse believes the drouth of last summer was really a blessing, and says, among other things, that owing to the season there were more ichenumon flies last season than ever before, and that this year they should prey largely on injurious insects. A. L. Brooke of Topeka also says that not for many years was the soil as sour as it was last spring, and after the drouth it was in a sweeter condition than it had been for a long time. It is claimed in Kansas—where they have had drouths before—that bountiful crops always follow a severe drouth. Let us hope this will be the case this season.

AGENTS AND DEALERS

Above shows our 1902 Improved Sprayer at work in orchard

To Canvass and Sell Rippley's Sprayers & Prepared Spraying Mixtures . . . . .

We manufacture and sell a complete line of Hand Sprayers, 4 and 5 gal. Compressed Air Sprayers, Wheelbarrow and Wagon Compressed Air Sprayers. Also Eclipse and Hardie New Models, 1902 Pattern, Orchard Sprayers. Prices, $1.00 to $35.00.

Rippley's Prepared Spraying Mixture.

We manufacture a complete line of Spraying Mixtures which will exterminate all insects that are injurious to fruit, plants and trees. We prepare the mixtures in a concentrated form; all you will have to do is to dilute them in water and follow instructions on Rippley's Spray Calendar, and you will make a success of spraying. Send good reference and $1.50 part payment on sample to show you mean business, and well will ship sample for you to canvass with among the farmers and fruit growers. You can pay balance due on sample in 30 days. Agents can make $50.00 to $250.00 per month selling our line of sprayers, mixtures and breeders' supplies.

Endorsed and Used by

Hart Pioneer Nurseries, Ft. Scott, Kan. Stark Bros.' Nursery Co., Louisiana, Mo.; Green Bros.' Nursery Co., Rochester, N. Y.; Alpha Nursery Co., Alpha, Ill.; Iowa Seed Co., Des Moines, Iowa; Neb. Seed Co., Omaha, Neb.; Vail Seed Co., Indianapolis, Ind.; Missouri Valley Seed Co., St. Joseph, Mo.; Western Fruit-Grower, St. Joseph, Mo.; National Fruit-Grower, St. Joseph, Mich., and thousands of others. Mail 2c stamp for our 1902 Sprayer and Breeders' Supply Catalogue.

Rippley's No. 7 Lawn, Park and Mountain Sprayers; also Whitewashing Machine, rigged to be shoved by hand or pulled by horse.

Rippley Hardware Co.

Mfgs. Sprayers

and Spraying Mixtures and Breeders' Supplies.

Box 217. Grafton, Ill.

—THE—
Shenandoah Nurseries
D. S. LAKE, Prop.,
Shenandoah, Iowa
Have to offer for Spring of 1902 one of the largest lines of assorted nursery stock in the United States.
Apple Peach
Cherry Plum
Keiffer Pear
Small Fruits, Shrubs, Roses, Evergreens, Shade and Ornamental Trees.
Write for special prices.

ONE MILLION

Choice Fruit and Ornamental Trees and plants in heavy surplus.
DEALERS AND PLANTERS
send for Wholesale Prices.
OUR SPECIALTIES
Spray Pumps
Veneered Tree Protectors
and Choice Nursery Stock
ADDRESS

HART
PIONEER NURSERIES
FORT SCOTT, KANSAS.

Agents Wanted.

A practical and common sense method of supporting limbs heavily laden with fruit. Cheap and perpetual—place on your trees in the springtime—to remain for years.
Hoyt Propless Tree Prop
Watsonville, Cal.

APPLE TREES
I have 100,000 No. 1 apple trees, 2 and 3 years old, 5 to 7 feet, and can fill all orders.
10,000 Wealthy Apple
I have a large stock of this money-making variety, propagated from my bearing orchard, and they are known to be true to name. Send for prices.
J. A. MOSHER
Rydal, - - - - Kansas

Blooming-Time of Varieties of Apples

WITH the increasing belief that mixed planting of apple orchards will secure better fertilization of blossoms, and consequently better fruit, there is naturally a demand for information as to the time of blooming of different varieties, in order that those varieties which bloom at the same time may be planted together. The following correspondence on the subject is interesting, and is timely. The subject is brought up in the following letter from Mr. Fred Halverhout, Grand Junction, Colo:

I found in the September number of your paper, of which I am a subscriber and interested reader, a very important article, "The Pollination of Apples," giving the explanation why it is wrong to plant apple orchards in large blocks of the same variety, and saying that different varieties which bloom at the same time, should be planted next to one another.

"I found in the Setember number of your paper, of which I am a subscriber and interested reader, a very important article: 'The Pollination of Apples,' giving the explanation why it is wrong to plant apple orchards in large blocks of the same variety, and saying that different varieties which bloom at the same time, should be planted next to one another. I have since looked in your paper to see whether one of the contributors, professors of horticulture, or practical apple raisers had ever given a list of apples blossoming at at the same time, but I have looked in vain so far. Now I am sperintendent of the Eldorado orchards at Grand Junction, Colo., and we have over 12,000 apple trees from 4 to 8 years old, but do not get much fruit yet, notwithstanding our trees bloom nicely. The same mistake has been made here probably in planting. We have the following varieties: Ben Davis, Black Twigs, Shackelford, Rome Beauties, Senator, Jonathan and Yellow Transparent. In another part of the orchard are planted two rows of Senators, two rows of Jonathan and two rows of Black Twigs alternating over 15 or 20 acres.

"Now, what I should like to know is, whether it would be a good plan to graft one or two branches of every other tree of every other row in the 10 acre lots with other varieties blossoming at the same time as the variety in that block. By judicious pruning these top grafted branches could be favored so as to give in a short time enough fruit buds to pollinate the whole main body of the block. If such a plan is practicable and advisable, which varieties should be used in the different blocks to graft with, and second, do Senators, Jonathans and Black Twigs blossom near enough at the same time to consider that part of the orchard where they are alternate planted right? If I could get information before the time for grafting, I would be very happy and thankful indeed."

The matter was referred to B. Buckman, Farmingdale, Ill., who has more varieties of apples than anyone we know of, and who, luckily, had kept notes of the relative blossoming time of different varieties of apples. Mr. Buckman replies:

"If I understand the writer, he has as good a chance to answer his own question as anyone I know of. Part of his orchard is in 10 acre blocks—a single variety in each block. But in another part the varieties alternate, or two rows of Jonathans, two rows of Arkansaw, or (Black Twigs), and etc. Does this part where the varieties alternate bear better than the same kinds in solid blocks? Does any variety bear less in the center of the block than on the outside where it touches another variety? He is certainly more competent to answer than I.

"My orchard is made up of many varieties, usually only two trees of a kind. I do not take kindly to the idea that so much cross-fertilization is necessary. It is a rule in my orchard for the trees to show full of blooms and then disappoint by not giving fruit. I do not lay it to lack of varieties that bloom at the same time, but to other things—lots of them. Sometimes a prolonged rainy spell, sometimes a frost, sometimes blight, often curculio, last year hail, etc. Some fruits, especially plums, bloom two or three years before they seem to develop strength to bear fruit. They seem to be putting their energy entirely to making wood and do not stove-up the fruit-making material. Discourage this wood-making tendency and a change comes. Here is where girdling, root pruning, trampling of the ground with stock, salting, etc., comes in.

"I once girdled one of the limbs of a small Yellow Bellflower tree about the time the bloom fell. This limb gave me a bushel of very fine fruit. On the other limbs the fruit dropped so that scarcely a dozen specimens were left in the fall. But the girdling was too early and the limb finally died. Three rows 50 rods long of of Hewes Crab obstinately refused to bear, although planted ten or twelve years. I knew of this variety bearing well in other places, so I resolved to kill or cure, and two rows were girdled about the middle of June. These two rows gave a full crop the next year, but the ungirdled row gave same as usual. The third row was then girdled and responded to the treatment just as the others had done. This remedy is not always permanent, and if carelessly done it results in injury to the tree, and except in rare instances, I do not advise girdling. However, it is evident that a lack of pollination was not the trouble here.

"Senator, or, as it is called, Olver, has not fruited here, but all of the others named by your correspondent bloom practically at the same time except Rome Beauty. The great mass of apples are practically in full bloom at so nearly the same time that cross-fertilization could always happen. I enclose partial notes of 1900. In that year, as you see, only a few varieties were in full bloom on the 29th of April; many more on the 30th, but the 1st, 2d and 3d of May brought nearly all to their full glory. The first page shows full notes, but the others only those varieties outside the four days limit, with the exception of the varieties named by your correspondent. The Genitin (Rawles Janet) is the latest of all here, with its child, the Wythe, a close follower; in some years the date is just the same. There is one variety, the Mountain Valley, that is said to bloom much later than even Genitin, and I hear of another that is, according to reports, later still. I have found, however, that there is such a thing as having too much of a good thing when we try to escape the effects of late frosts by getting late blossoms. One variety, the Neverbloom, has proved true to its name and has thus escaped the latest of all of the frosts—having never shown bloom or fruit, although planted in '88. To find a cross pollenizer for this variety would indeed be a puzzler."

We take the figures from the notes which Mr. Buckman sends, and, as he says, after the first page of his notes, he gives date of blooming of only those varieties which were not in bloom during the four days from April 30th to May 3d. The first page of Mr. Buckman's notes extends to the Chippen variety of apples, his list being arranged alphabetically. Therefore the notes are complete up to this variety, but after that, dates are given only where out of the limit as stated.

In 1900 the first blooms worthy of counting were on April 29, at which time the following sorts were out: Aiken crab, Batingme, Black Lady, Dominie, Early Colton, Early Ripe, Early Strawberry English Pippin, Family, Haas, Iowa Keeper, Lambert, Longfield, Melonen, Primate, Revel, Standard, Stump.

On April 30—Abram, Akin, All Summer, American Summer, August crab, Babbitt, Barcelona Pearmain, Belbod Roozka, Belle de Boskoop, Belmont, Benoni, Black Gilliflower, Blue Mountain, Blue Pearmain, Blushed Calville, Bagdanoff, Boren Winter, Briar Crab, Celestia, Celini, Champagne.

May 1.—Alfriston, Amos Jackson, Antonovka, Arkansaw Beauty, Austin Sweet, Autumn Swaar, Avera Favorite, Battulen, Beauty of Bath, Belle Pontoise, Ben Davis, Bethel, Black Oxford, Black Warrior Blanchard, Blinkbonny, Blooming Orange, Borovinka, Brightwater, Broadnax, Butters Sweet of Pa., Canfield, Cannon Pearmain, Capp Mammoth, Carolina June, Carolina, Watson, Cathlin Pippin, Cheese of Pa., Jonathan, Shackelford.

May 2.—Ailes, Alstott, Amasia, American Blush, Andrew Winter, Anism, Arkansaw (M. B. Twig), Arkansaw Black, Aunt Ginnie, Bedford,

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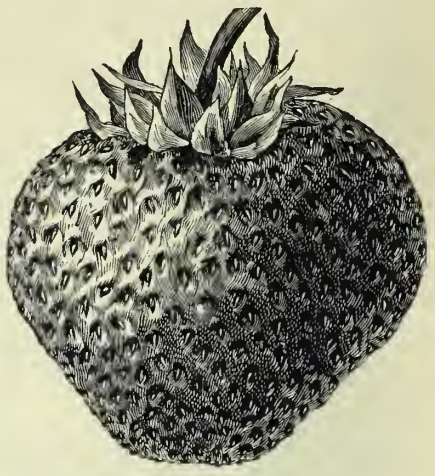
And How to Grow Them

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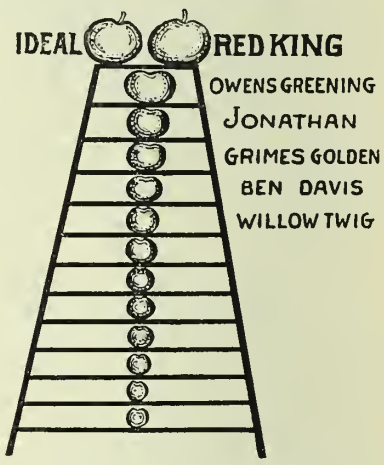

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	$15.00	$20.00	$25.00
Emma	1,000	12,000	14,000
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Mathews Beauty.		1,000	500
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Bentley Sweet, Berry Red, Bethlemite, Bonegardner, Bonum, Bottle Greening, Bowers Nonpariel, Bowman Excelsior, Boyd, Brewington Pippin, Brownlee Rus., Bullett, Cadwallader, Camack Sweet, Canada Baldwin, Carpenter Sweet, Charlamoff, Chattahoochie, Chenango, Chester Co., Yellow Transparent.

May 3.——Bachelor Blush, Bailey Sweet, Barton Sweet, Boiken, Buckingham, Caroline Beauty.

May 4.—Annas Gregorie, Annie Elizabeth, Arabka, Arnold Beauty, Barnock, Beauman Winter, Beauty of Kent, Betty Geeson, Cornish Gilliflower, Crockson, Dr. Walker, Fall Winesap, Forden, Franklin, German Seed, Gooseberry, Grenadier, Harper, Hoover, Hugenot, Jefferis, Kansas Bellflower, Kansas Greening, Jones Seedling, Lincolnshire Red Coat, Lord Grosvenor, Mason Orange, May, Middleton Greening, Moore Favorite, Mount Boomer, Nancy Jackson, Perry, Red Queen, Repka Malenka, Sauta, Sciota Beauty, Shrode Winter, Stoke Edith, Tewksbury Blush, Trenton Early.

May 5.—Baltzby, Bidwell, Grandmother, Highland Beauty, Middleton Greening, Mother, Porter, Reinette Gris Anjou, Rome Beauty, Ten Shillings.

May 6.—Borsdorfer.

May 8.—Wythe .

May 10.—Rawles Janet.

Of course dates will differ each year, owing to the season. This list simply shows the relative time of blooming. As Mr. Buckman, in his test orchard, has 1,420 varieties of apples, which includes all the varieties generally planted, it may be assumed by the reader that any well-known sorts, such as Grimes, Willow Twig, etc., which do not appear in this list, blossomed between April 30 and May 3, as stated before .

Diversified Farming

We are prompted to send you some notes on our experience in diversified farming and fruit growing by an article in the January number of the Fruit-Grower.

We will begin by giving our experience with the last year of severe drouth, which, from the standpoint of the one crop alone common farmer, should boom the diversified crops idea. We sowed our oats the last week in February and the first week in March and fertilized it and got a good crop which is now worth 50c for feed, or 60c for seed , besides a bright lot of straw to feed. Oats sown a month later were not worth harvesting. We sowed oats with a drill on the coldest day we had last winter, which is something we never did before: we had 55 acres of oats. We planted 25 acres of corn early on a good land, kept it well cultivated and it looked fine until the drouth overtook it. It failed to make five bushels of corn all told. We saved the fodder and put 10 acres of the land in turnips which made over a thousand bushels. We put balance of corn land and all of oats land to wheat and fertlized it, sowed second and third weeks of September. It looks fine and has pastured 25 head of cattle all fall and winter, except when the ground is covered with snow. These cattle were kept cheaper so far this winter than they can be kept in summer, because in summer we have to furnish the land just for pasture alone, while the wheat pasture costs us nothing, as we expect a full crop of wheat besides, and the price is assured, as it will come in before corn, which will be scarce and high in price. Wheat was a good crop last year, but we had none sown, though we bought some at 53 cents which is worth 85 now. We had a good half crop of timothy and clover hay—about fifty tons, which is worth $12 to $14 per ton, which amounts to more than a full crop usually brings, and we can spare the most of it, because of the wheat pasture, which we will continue to use, and the cattle will be worth much more in the spring.

So we fail to see where the drouth has hurt diversified farming, while we pity the poor corn farmer. Well, what business has the above in a fruit paper? some one may ask, which reminds me that I am a fruit grower also and need all of the above named crops in my diversified business. The drouth hurt garden crops most: potatoes and early gardens almost a failure, though we had a good very late garden. Our strawberries were cut short some on account of drouth, but prices were fair. Cherries were an excellent crop, in quantity as well as price. Peaches were a good crop—we sold 400 bushels on the home market at one dollar per bushel. Raspberries cut short by the drouth, while blackberries dried up on stock. Pears bloomed full but young Keiffer trees dropped their fruit; old trees matured their crop. Apples were full enough, but many were wormy and small. We had a lot of medium and small Ben Davis, which don't seem to be in demand, and while there is an effort to still further boom the Ben Davis, I think I know when I have enough, especially of a second rate article, so I will plant no more. However, as some have made money in this year of high prices, caused by crop failure in the east, the Ben Davis will continue to boom a while longer without my help, and as the discussion still goes on in regard to flavor we must simply allow each one to judge that matter for himslf, as this is a free country.

Why, I know lots of men who claim that tobacco has a fine flavor, but they should not do as a certain church I know of, which in handling the tobacco matter expelled all its members who failed to endorse the weed. The Ben Davis boom, like all others, will run its course, which reminds me of a strawberry boom in this country a few years ago, brought about largely by a certain fruit paper which repeatedly told its readers that the strawberry was a great money maker—a sure way to pay the mortgage off the farm. So, in spite of the advice of the conservative fruit men, who had been long in the business, many farmers without any experience and being hard pressed by a mortgage, rushed into the business, thinking the advice of the conservative fruit growers was only given from selfish motives, to keep others from sharing their profits, but as there could only be one result we prepared for the worst.

Next we discovered that many of the new converts brought in under excitement were not able to stand alone, they began to enquire how to dispose of their crop. So as the preacher (editor of the fruit paper) was up against it, he had to answer the question, which he did by saying the secret lay in co-operation and distribution, so they co-operated and distributed to all points even to the far east, while the east were shipping west over the same road, so the editor was right when he said there was money in the business, but the other fellows got it, the railroad, plant sellers and commission men who helped along the boom, then many of the new converts backslid and sold their farms. In fact I took in two of those new berry farms myself after the owners came to me repeatedly asking me to do so. And those berry plants were plowed under to enrich the ground for other crops. These men could raise acres of berries—good ones too, but could not raise the mortgage.

I mention this fact for the benefit of those who claim that a good thing cannot be overdone, and God pity a a poor thing that gets too much booming. A boom is always the biggest just before it busts, which we discovered in the special strawberry number of the paper referred to, largely made up of advertisements from commission houses soliciting berries, while they would not buy the berries at any price, yet their advertisments were paid for out of the berry growers pockets, much space was also taken up by plant growers who were making money out of the boom, while the paper itself was like a rabbit trap lately described in the Western Fruit-Grower, which was reaping a harvest both ways—it was open at both ends and caught them a coming and a going.

I once caught eleven rabbits in one of these traps in one night, which beats the record so far as I have heard. But it is very humiliating I think for an editor to have to eat his own words when his favorite boom bursts, in trying to invent excuses for the collapse. So let the watchword be "diversity of crops," which I can testify was the key to success in the past season of the unprecedented drouth, as well as in ordinary years.

I never saw a better prospect for good prices of all farm crops—grain, livestock, hay, fruit, garden crops, etc, which will increase the value of land also. Providing our editors don't alloow certain things to over boomed, I know of no country better adapted for diversified farming than this if we will do our part well, and as a certain preacher said, "The reason ninety-eight out of one hundred men fail in businss is, because only two out of one hundred take God into their business affairs." So let us all take a hint and not over boom a thing which is of lightweight and doubtful quality, just for the money we get out of it, because it will react on us sooner or later.

B. F. WAMPLER.

Carthage, Mo.

HORTICULTURAL SUPPLIES.

The Missouri Valley Seed Co., 418 Edmond St, St. Joseph, Mo., has just issued a valuable catalogue, which should be in the hands of every reader of the Western Fruit-Grower. This company not only handles seeds of all kinds, of the very best strains, but also has other departments in which our readers are interested—in fact, the store is called a "horticultural seed store." The catalogue referred to contains illustrations of saws, pruning knives, shears, etc.; prices of berry box material, grape baskets, peach crates and all kinds of fruit packages; illustrations of all kinds of spray pumps, from the smallest atomizer to big orchard pumps, operated by sprocket wheel attached to wheels of the wagon; insecticide and fungicide chemicals are also listed. Poultry supplies of all kinds are quoted, and altogether the book is very complete and is of value to all farmers. This catalogue will be sent free to all readers of the Western Fruit-Grower who write for same, or if you desire a splendid collection of garden or flower seeds, send 25 cents and a collection worth much more will be sent, together with the catalogue. See the two ads of this firm in this issue, and write today for the collection of seeds and catalogue, or for the catalogue alone. State what class of goods you are interested in .

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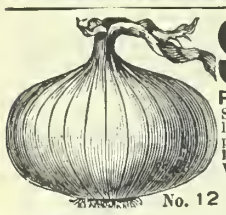

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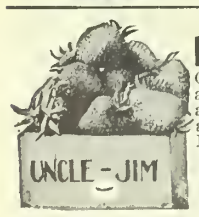

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We present herewith an illustration showing a birds-eye view of the Orton Nursery, in Woods Co., Okla., eight miles from Kiowa, Kan., 3½ miles south of the Kansas line. This cut not only shows a very well-kept place, but is noteworthy in the great transformation which has been effected in a short time. The proprietor of this nursery is F. B. Orton, who made the run when the Cherokee Strip was opened, and entered 160 acres of land. He started in the nursery business in 1896, and his trade has increased so that he has had to enlarge every year. The land was in Buffalo grass when Mr. Orton settled upon it; now it is worth $6,000 exclusive of the nursery stock. This only shows what can be done by a determined man. One seldom sees a neater place than the one here shown, and Mr. Orton deserves great credit for the great work he has done.

Illinois Grape Yield

The Statistical Report of the Illinois State Board of Agriculture for 1901 is just at hand. I find therein that the entire state of Illions is credited with producing 1,329,223 pounds of grapes in that year; that the central division of the state, consisting of some thirty-three counties, including Hancock County, in which our town of Nauvoo is situated, produced 526,219 pounds.

Now, I will state for a positive fact, and I have the weighing receipts to prove it, that I received and personally weighed for E. Baxter's Sons of Nauvoo, Ill., last fall, more pounds of grapes than central Illinois is credited with producing, and these grapes that I received and weighed were all produced in the fractional township known as Nauvoo, embracing about four full sections of land, and containing the city of Nauvoo of some 1,500 inhabitants. I am fuly satisfied that if we take into account all the grapes made into wine, those shipped by other parties, those sold to farmers and hucksters, and those peddled in the neighboring cities of Keokuk, Fort Madison, Burlington, etc., that the grand tottl produced by Nauvoo foro 1901 would considerably exceed 1,000,000 pounds or almost as much as is credited to the entire state of Illinois for the same year. Here is food for reflection. EMIL J. BAXTER.

Nauvoo, Ill.

(We do not know how the statistics are collected, but no doubt the board tried to get accurate figures. They did not succeed, as Friend Baxter shows, and next year should secure the co-operation of the members of the Illinois Horticultural Society.—Ed.)

More Questions About Black Ben Davis

In the question and answer of Messrs L. A. Goodman and Frank Holsinger under the heading "More About Black Ben Davis," in Western Fruit-Grower, February issue, the real question that concerns the planter or fruit grower has seemingly been overlooked.

1.—In the first place, Is the Black Ben Davis a black apple?

2.—Is the Black Ben Davis a new variety?

3.—Will the Black Ben Davis trees that have been sold, and are being sold as Black Ben Davis, produce the kind of apples that Mr. Holsinger thought, "they are evidently from the Pacific Coast, having the peculiar growth of that region" and that "Mr. Crow assured me the apples were Missouri grown, having been raised in Lawrence County"?

4.—Will the Black Ben Davis if planted in Lawrence County, Mo., or adjacent counties produce the peculiar growth of the Pacific Coast and be in flesh "as dark-fleshed as Winesap"?

5.—Is the flesh of Black Ben Davis primarily "as dark-fleshed as Winesap"?

6.—Is the Black Ben Davis a different variety from Reagan's Red of Washington County, Arkansas?

7.—Should a judge after passing upon a variety follow the suggestion of an exhibitor as to correctness of a grower and name of grower being variety without actual locality of given, in order to verify as to correctness of fruit should he find he was deceived as to label on fruits exhibited?

8.—Was Major Holsinger deceived as to the apples labeled "Black Ben Davis"?

9.—If one variety exhibited is positively known to the judges, then should not more than a verbal statement be offered as proof of another exhibit where more question had previously arisen as to the correctness of that variety?

10.—Should a judge have personal knowledge of contested varieties?

The answer to these questions will be of interest to the readers of the Western Fruit-Grower. Yours truly,

HENRY N. WILD.

Sarcoxie, Mo.

Texans Are Enterprising

Bowie, Texas, will have a canning factory, for the purpose of canning fruits and vegetables, with daily capacity of 25,000 cans. The growers have also formed a strong organization of nearly 100 active members, with the following officers: H. B. Hillyer, president; W. J. White, vice-president; J. A. Youree, secretary; J. M. Stallings, treasurer. The title of the organization is the Bowie Fruit and Truck Grower's Association, and the members will plant largely of Irish potatoes, canteloupes, and other garden stuff for Northern markets, for the growers will grow more produce than the canning factory can use.

It was through the efforts of Mr. Hillyer and others that the canning factory was secured, and with it ready to take the surplus products, the growers feel that they can safely put in large acreages—they will ship what they can, and can what they can't, in other words. This is a good combination, and we wish it every success. The secretary, Mr. Youree, writes that land is cheap and productive, and anyone wishing further information can secure same by writing him. Bowie is in Montague County, in Northern Texas.

ACHING KIDNEYS

Urinary troubles, Palpitation of the heart, Constipation and stomach disorders, yield at once to

Prickly Ash Bitters

It is a marvelous kidney tonic and system cleanser, strengthens the tired kidneys, helps digestion, regulates the bowels.

PRICE, $1.00.

SOLD BY ALL DRUGGISTS.

ASK FOR CATALOG AND PRICE LIST.

SPAULDING GROWN TREES & PLANTS

LARGE ASSORTMENT—select sorts—Fruit Trees, Fruit Plants, Shade and Ornamental Trees, Evergreens, Roses, Shrubs, Vines, Bulbs

FREE 120 page illustrated catalog . . .

ESTIMATES AND PRICE LIST.

NO MORE CABBAGE WORMS

and no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both; and it is cheap. Both receipts sent for $1. B. P. eggs, $1.00 a setting. JOHN KLENKE, 412 West Homestead, Pa.

DEWEY CLING PEACH

Can show "Gilt Edge" testimonials. Do you want to read them? Can be had by asking. "Introducer."

H. W. JENKINS, Boonville, Mo.

OOM PAUL NEW SEEDLING STRAWBERRY

Six giant berries from one plant filled a quart, for which $10 was paid at our field meeting, June, 1901. Send for catalogue, free. Introducer,

T. C KEVITT, Athenia, N. J.

SEEDS BUY SEEDS THAT WILL GROW

Five Pkts. FLOWER SEEDS, Giant Cyclamen, Giant Pansy, Giant Verbena, Double Dahlia and Poppy, 7c. 5 Pkts. VEGETABLE SEEDS, 10c. PLANTS: 6 Roses, 25c; 4 Pelargoniums, 25 c; 6 Begonias, 25c. Catalogue and present free for names of seed buyers. A. C. Anderson, Columbus, Neb.

40,000 LUCRETIA DEWBERRY PLANTS. . . .

10,000 Kansas Blackcap Raspberries. Red Raspberries—Louden, Miler Red, Early Thompson, King.

GEO. L. GAST, Le Clair, Iowa.

OH! YES!

They are coming: Letters and Orders by the hundreds; every post. Having seen my ad in January number of Western Fruit-Grower, they all want Wholesale Prices and the beautiful electro plate of Baldwin Cherry. They all know that ours is the Banner Corn County in Kansas, and our trees are the best.

BALDWIN, Nurseryman, Seneca, Kan.

FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.

COILED SPRING FENCE CO., Box 125 Winchester, Indiana, U. S. A.

TREES and PLANTS THAT GROW

and bear fine fruit. We grow that kind. Large stock. Honest dealing. Low prices. We pay freight. Budded Peaches 6c; Grafted Apples 5c; Concord Grapes 2c. English or German catalogues free.

CARL SONDEREGGER, Prop. Box U, Beatrice, Neb.

Hillis Dust Sprayer

The Original Dust Spraying Machine

This machine is cheap and effective in its work—it can be carried and used to spray trees or garden truck, or for large orchards—two men, with a boy to drive, and using three machines in a wagon, can spray a large orchard in a day.

Dust Spraying is Not An Experiment

Thousands of the Hillis Dust Sprayers are in use, and it is most in demand where it is best known.

We Furnish Dust Poisons for Any Machine Made

These poisons and fungicides are ground to a fine powder, and by using them one has the greatest success. The poisons are furnished for about the same price you would pay for raw materials.

Hillis Dust Sprayer Co.
St. Joseph, Mo.

Agents Wanted!

We want one thousand fruit farmers to take the agency for the

Hillis Dust Sprayer

This machine is a great seller, because it does all the work claimed for it. It sells at a low price, and is needed on every farm.

Many agents made big money last year selling the Hillis Dust Sprayer, and this season sales will be much larger.

If you want to make money, and at the same time help your neighbors to save their fruit and vegetable crops, take the agency, and get to work. Address

Hillis Dust Sprayer Co.
St. Joseph, Mo.

Protection Against Late Frosts

As spring advances every fruit grower, whether he be growing fruit in large quantities or only for his own use, will be anxious to be past the frost period. We of the middle west are troubled about as much with late April and May frosts as we are by the constant thawing and hard freezing of midwinter; if our fruit escapes the winter there is still the frosts to catch the tender blossoms in late spring.

We spent last year in Oregon and Washington and watched with interest some experiments made by the professor of horticulture in Southwestern Washington. There, although their winter are very mild, frost in April does great damage to the fruit crop. We spent the month of April on a large fruit ranch and assisted in the experiment of building smudges through the orchards. The cold weather lasted about ten days and began about the 12th of April. The experiment was tried in two orchards owned by the same man and situated about one mile apart, one near the Columbia river, the other back further on the west side of a high bluff.

The autumn before small piles of straw had been placed about 20 feet apart in alternate rows. The first night when the thermometer went to 26 degrees we began to light the smudges, lighting every fifth pile in every fifth row we found the straw dry and it blazed up, making no smoke or steam, but the mercury went no lower, so the next day we handled water and thoroughly wet every pile. That night we carry the oiol can to assist in lighting, still the smoke and steam rose above the trees and did not seem to do as we wished, but the mercury going to only 34 degrees that night there was yet chance for another trial. The next day, after taking a few hours' sleep, we hauled out fresh stable manure and completely covered every little straw pile. That night about midnight we began lighting fires and as soon as it got well started, with wet manure we choked out the fire and such a dense white steam as settled over the orchard we felt must do good. By 5 a. m., the murcury had fallen to 30 degrees.

In the meantime the man who had care of the orchard near the river was not having success in getting a smudge. The next day the owner of the orchard sent out a barrel of tar, with orders to put some on the smudges. We felt like the wet manure was the best, so did not obey. However, the man near the river used the tar but with poor success. After a week the professor of horticulture visited the orchards of that vicinity. He found many where the buds were blackened, and where the young fruit had formed much of it was hurt. In this orchard everything appeared right and he said he did not think the tar was of any use. After ten days of frost the weather got warmer, although all through May there were occasional cold rains.

The fruit crop was more or less damaged all over the two states, but in our immediate vicinity these two orchards had one-fourth better crop that the other orchards in that section and it was even better than the orchard nearer the river, as the tar failed to make a white steam like the wet manure. We felt that, although it was very hard work, it would pay and we determined to try the experiment on Iowa frosts. J. W. MILLER.

Atlantic, Iowa.

CATALOGUES RECEIVED.

J. H. Hale, South Glastonbury, Conn.—This is a business catalogue, contains descriptions of few varieties, and they are of the best. The strawberry department and that devoted to peaches is especially good. Mr. Hale gives a list of peaches for succession which is of value.

Galbraith Nurseries, Fairbury, Neb.—General nursery stock, with special attention to needs of Western planters.

Lee's Summit Star Nurseries, Lee's Summit, Mo.—This is a good catalogue—like the nursery sending it out. Among other things, this catalogue advises its readers to subscribe for a good horticultural paper, the Western Fruit-Grower in the list. But this isn't the only reason we think the catalogue is a good one—it is good on its own account.

F. B. Mills, Rose Hill, N. Y.—General list of seeds, farm, field, flower and garden. Specialty is made of new Klondike tomato.

Coe & Converse, Fort Atkinson, Wis.—This is a catalogue of interest to Northern planters, and to all who want Northern-grown strawberry plants.

Each month our subscription department shows an increase over not only the preceding month, but over the corresponding month of last year. Now, April, 1901, was our best month of that year. Let us make it a great one this season. Why not every subscriber try to fill out one of the "Five-for-a-dollar" blanks? You know we will appreciate this by improving the Western Fruit-Grower. The paper is much better than when we had only 5,000 circulation, is it not? Well, it will be improved in just the same ratio that our subscription list increases. Send a good list of new subscribers, and do your part.

NOTES.

The following officers were elected by the Virginia Horticultural Society: President, M. F. Johnson, Fern Creek; secretary, F. M. Garrett, Fort Garrett; vice-presidents, William Cook, Warren County; W. Jeff Lee, Bullitt County; H. F. Hillemeyer, Fayette County. The next place of meeting was left to the executive committee.

The Idaho Horticultural Society estimates 40,000 acres in orchard in the state of Idaho, the industry having been well promoted through the educational efforts of the society. J. B. Perrine, Blue Lakes, was re-elected president; F. A. Huntley, Moscow, vice-president; Robert Milliken, Nampa, secretary; R. M. Gwinn, Caldwell, treasurer, for the ensuing year.

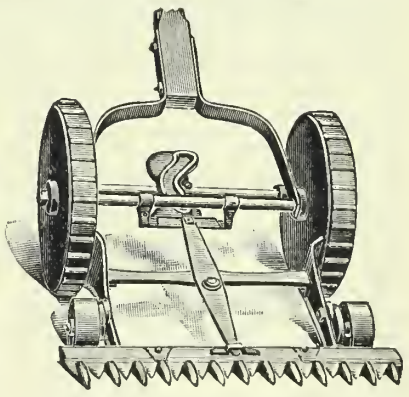
"The truth is," a Chicago South Water street commission merchant is quoted as saying, "If American farmers and gardeners understood the wants of the apple trade in the country they would give a great deal more attention to apple orchards than they do now. There is vastly more money in apple orchards in the middle West than there is in orange groves in California and Florida."

Thos. H. Johnson, Columbus, Neb., says peach buds seem to be all right so far in his vicinity. W hope he is right, but fear he is mistaken, for other reports from Nebraska say the buds are about all killed. For instance, W. G. Swan of Tecumseh says that while a few seedling trees may have some live buds, he has found none on budded trees. Strawberries are looking well and promise good crop, says Mr. Swan.

In a letter from John O. Greene, New Albany, Ind., that gentleman says: "Fifty years ago I stood on the hill back of what was then St. Joseph, and stated to a friend that if he would there set a stake and draw a circular line of 100 miles around it he would include more good land than could be found in a circle of the same size at any point on the globe." Mr. Greene was certainly a prophet, for time has demonstrated the truth of this statement.

In regard to the grape root worm, which has secured such extensive hold of some vineyards in the Lake Erie grape section, Mr. Barden, inspector for that district, advises as the best remedy now known the thorough cultivation and pulverization of the soil. He states as a fact well established that the grub of the grape-root worm cannot burrow. It is th production of a beetle that leaves its eggs on the vines in the spring, and when the grub reaches a certain stage, in July, it drops to the ground.

John E. Chesley, Amesbury, Mass., says he has several hundred Burbank and Abundance plums, and the chief fault he finds with them is that they are not good keepers. By cutting back he says he gets large, finely colored Burbanks, but they decay so quickly that fruit dealers will not handle them. "I had Abundance is not large enough for fancy trade; it is they did not decay on the trees there, while in a blackberry patch, where the soil was rich, the fruit decayed on trees. The Abundance is not large enough for fancy trade it is not a good keeper, but better than Burbank. The latter is worthless for my trade, for it often decays before it is mellow. Who can name a large Japan plum which is a good keeper?" Who can advise Mr. Chesley? Most growers in this section, we know, would say, don't plant the Japs commercially, but they do better in the East.



THE MOWER

That will KILL ALL THE WEEDS IN YOUR LAWNS. If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and weeds will disappear. THE CLIPPER WILL DO IT. Send for catalogue and prices.

Clipper Lawn Mower Co. Inc., Norristown, Pa.

SEED OATS

We are headquarters for Seed Oats in either large or small quantities. THREE BEST AND MOST RELIABLE CROPPERS IN EXISTENCE. "Mammoth White Russian," "Early Champion White" and "Lincoln" white oats. Write for FREE Catalog of all leading and best Farm and Garden Seeds; also our BOOK ON CORN GROWING. Address, J. R. RATEKIN & SON, SHENANDOAH, IOWA.

SPRAY PUMPS

Our pumps are all brass, are durable and easy to operate. We guarantee them. Agents wanted. Write for catalogue and get treatise on spraying free.

J. F. GAYLORD, Catskill, N. Y.
Successor to P. C. Lewis Mfg. Co.

WE WANT MEN TO LEARN THE BARBER TRADE.

Only 8 weeks required; years of apprenticeship saved by our method of constant practice, expert instruction, etc. We have placed graduates in leading positions everywhere. Comparatively no expense. Catalogue mailed free by addressing nearest branch of the

MOLER SYSTEM BARBER COLLEGES
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Classes for Ladies in Hairdressing, Manicuring, Facial Massage and Chiropody also.

For Sale---Peach, Apple and Japanese Plum Trees and Grape Vines

Good stock and low prices.

W. H. ROCHELLE, MEDON, TENN.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All adds of farms for sale, or farms wanted, which are intended for this column, will be insterted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

FRUIT FARMS.

DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm.	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres,	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres,	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6000 trees,	7 rooms	6,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,800
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

Fruit and poultry farm, 6½ acres, joins town, good building, (photos sent) home market, high prices, write quick. H. L. Luce, Inavale, Neb.

Fruit and grain farm, 90 acres, fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

KANSAS FARMS, for sale in Jewell and Norton counties—the land of alfalfa, wheat, corn, beef and pork. For descriptions, price and terms address O. L. Rice, Mankato, Kan.

FOR SALE—A beautiful farm of 65 acres; good (6) six-room house, large new barn, costing $500; new machinery house; large poultry house; small fruits; 1500 fine apple trees, about 400 Ben Davis 12 years old—none finer in any state; 15 acres meadow; 9 acres rye; 6 acres pasture; wells, cistern and springs. More good land can be bought cheap. One and a quarter miles to railroad station and only four miles to county seat, where there is a milk factory and other factories and a good college town. $3500 Terms to suit. Dr. G. R. White, Greenville, Ills.

FOR SALE—One Marsh I Pump for irrigation purposes, capacity 5,000 gallons per hour, and one ten-horse power upright boiler. Samuel Avery, R. F. D. No. 4, Council Bluffs, Iowa.

Send 10c silver and stamped envelope for recipe for POSITIVE CURE for rheumatism. Cures quickly; nothing to equal it; ingredients inexpensive; lasts for months. F. E. Hamel, Capitol ave., North, Lansing, Mich.

Manager wanted for 120 acre commercial apple orchard, commencing to fruit, must invest $2,000. Which will secure one-half interest in the farm: experienced orchardist only need apply, or will sell the entire orchard at a bargain. Here is a snap for some person. A. G. Bonham, King City, Mo.

NO MORE FLIES—Mosquitoes or cabbage worms. I have a sure cure for those pests; save your cabbage and keep you house clear of flies; no use for screen doors or fly-traps; cost less than 10 cents per month; guaranteed no trick or scheme. Send 50 cents in silver and get both receipts. Address P. O. Box 22, West End, Ill.

NOTICE TO FRUIT GROWERS—Why buy paris green to spray fruit trees? Get my receipt; make it for less than one-half what you pay your dealers; make it and sell to your neighbors. Receipt for 50 cents in silver. Address P. O. Box 22, West End. Ill.

Rose Comb Brown Leghorn Eggs—18 $1.50, 50 $2.25, 100 $4.00; Barred Rock eggs 18 $1.00; Bronze Turkey eggs 11 $2.00. Rocks score to 93; Leghorns to 94, by Russell. John Tharp, Mt. Sterling, Iowa.

BEST IN THE WORLD

Iwan's Patent Improved Post Hole & Well Augers

A man can do THRICE THE WORK with an "IWAN" than with any other. Highest award World's Fair, '93.

Sample at special price to introduce.

Users value them at $25. Inquire of hardware or implement dealers or write us for particulars of our full line. Used by the U. S. Government. Agents wanted.

IWAN BROS., 212-13 N. Bloom St., Streator, Ill.

Garden Plows 38-inch wheel. R. C Buckley, Peoria, Ills.

WANTED—50 C. L. Birch, 5 to 6 ft., or 6 to 7 ft. G. E. Axelson, nurseryman, Moline, Ill.

Intelligence in Trees

THE more one studies a tree, the more amazed is he at the shrewdness and business ability, and for acuteness it may take its place beside the dog and horse. How little people realize the cruelty they inflict on a tree when they allow it to be bruised and neglected. To me there is something very pathetic in a suffering and dying tree. I will cite, for example, the cherry tree, and there is no country outside of Nebraska where such fine cherries of the sour variety are grown. Each tree planted seems to have an ambition of its own in trying to do its very best. I have a few of these trees in my orchard. As the soil was not deep enough for them, I put on several loads of fine earth, and gave them the best of care, and how they grew and what luscious fruit they bore. A neighbor of mine being desirous of raising some fruit, bought the finest trees he could find, paying a good price for them. He set them out in uncultivated ground, near a row of dead trees on his hands. He might as well have tried to raise fine thoroughbred calves among a lot of Texas steers. I once moved onto a place with very rich ground about it. Around the garden was a row of maple and elm trees, making it too shady, as the former owner said, to raise anything. I knew at once what the trouble was, and thrusting a spade into the ground fifty feet from the trees found the soil like a sponge, it being so full of fine feeding roots. A tree is about as cunning as a rat. It knows where to find good food and does not mind going quite a distance for it. To remedy the trouble I dug a trench ten feet from the trees on the inside and three feet deep, and as a reward for my labor had one of the finest gardens in town. The next spring I found I had to throw out the trench again, for those determined trees had sent out their foragers again and were bound to have their supplies. There was a broad road on the other side, but they preferred the rich and well-cultivated soil. I have known a cottonwood, in a dry yard and in grass, when suffering for water, to scent a cistern 200 feet away and send out feeders, and you may rest assured those tiny pumps got in their work. All were surprised to see the vigorous growth of that tree standing in such dry ground, but all at once the cistern failed, for the tree had been drinking it dry. Once, when I was speaking on this subject before the horticultural society at Worcester, Mass., that prince of horticulturists, A. B. Hardwin, related the following incident: He had a row of apple trees. Parallel with the row, and a few feet away, he spaded up a trench, mixing in loads of manure for a row of pieplant. A few years later, having occasion to dig up the trees, he found that the roots from the farther side of the pieplant had turned and crept under the trees and beside them, and had gone with the other roots to rob the pieplant of its rich nourishment. Where, among men or animals, can you find keener intelligence! While studying nature in the Rockies, I formed the acquaintance of a remarkable tree—the Pinus Ponderosa or Bull pine. This tree is remarkable in that it will grow with very little moisture, and how it can propagate itself and live on those barren hills is a marvel. It hems in the great plains on the west and north. There are many groves of these trees in northwestern Nebraska. You will find them perched on the summit of barren bluffs and rocky hills, or hanging over the brows of precipices, bidding defiance to the hot suns and drying winds. I have a fine grove of them in the yard of my summer home in the Rockies. One old monarch is eleven feet in circumference. The foliage is always fresh and green and the trees are growing vigorously. I have often wondered how this could be when the soil was so dry. One day, while digging a hole near an irrigating ditch to plant a tree, I found a mass of these roots down at the ditch drinking like so many cattle, which explained it all, and trees 200 feet away were helping themselves to that water as if they owned the whole thing. While these trees can live on a small degree of moisture, they will absorb large quantities if but given the chance. I have noticed on dry bluffs where the roots have not been able to reach water for some time, particularly in a dry fall, that two-thirds of the needles will turn yellow, and to all appearances the trees are dying. But this is not so, there not being provision enough for the whole family, a part of it is cast off so that the rest may live. A gentleman of my acquaintance once transplanted some large cedars. As they dropped most of their foliage, he thought he had made a mistake and the trees were dying. I examined them and found they were all right. I said to him, "They know more than you do, you should have sheared the outer limbs, and cut out some of them to correspond with the loss of the roots. But as you did not do so, the trees have taken the matter in hand, and knowing the capital they have to work on, are dropping some of their leaves. As there is still some green foliage, I am sure if you water well by fall your trees will be a fine success." The great plains of the Rockies are barren and desolate, owing to the seeming utter impossibility of irrigation, but I feel sure that if the pinyon, ponderosa pine, brown and silver and red cedars were transferred from their homes upon the dry bluffs to the rich plains of the valleys, and care given them, that that waste of desolation would soon be clothed in beauty. And now for the problem of the future: A company of able government experts have been spending the summer in this state studying up the forest conditions with the expectation of planting on a large scale. And they will succeed, for trees are waiting and have been waiting for ages for the chance. C. S. HARRISON.

York County, Nebraska.

INSEXDIE INSEXDIE INSEXDIE

For One Dollar

we will send a package of

INSEXDIE

which kills all insects on plants and is non-poisonous.

Don't use Paris Green. It is poison.

INSEXDIE

also kills roaches, ants, moths, fleas and bed bugs.

Ginseng Distilling Co.

3800 S. JEFFERSON

SAINT LOUIS, MISSOURI

INSEXDIE INSEXDIE INSEXDIE

GOOD PRUNING SHEARS.

During the past month we have sent out many pairs of the Levin Pruning Shears, advertised elsewhere in this issue, and have yet to receive a word of complaint. A. S. Perry, Yukon, Okla., says: "They are the 'powerfulest' shears made."

Order a pair at once. They are guaranteed by the manufacturer and by us. The price includes postage.

By a unanimous vote of Agricultural, Horticultural and Irrigation Society of Oklahoma and Indian Territory decided to make a special display of fruits and vegetables at the Louisiana Purchase Exposition. The convention closed by the election of the following officers: President, J. A Taylor of Wynnewood, I. T.; vice-president, A. P. Watson of Shawnee, Okla.; secretary and treasurer, J. B. Thoburn of Oklahoma City, Okla. The improved stock-breeders of Oklahoma elected as president, C. S. Williams of Enid and secretary, G. G. Barker of Oklahomao City.

If you want to
CULTIVATE YOUR ORCHARD
In the Best Manner and at the same time at least expense, write The General Agent for circulars of
Cark's Cutaway Extension Harrows.
E. G. MENDENHALL, Kinmundy, Ill.

Apple Seedlings, Root Grafts
Put up to grow, any grade or style desired. Also a general nursery stock for sale at prices that are right. Send for price list.
Hawkeye Nurseries, Stratford, Iowa
W. H. KAUFFMAN, PROP'R.

WE PAY THE FREIGHT
Our prices are right and show just what the goods cost you at your R.R. station or express O. Send at once for new descriptive price list.
New Haven Nurseries, New Haven, Mo.

Fairfield Strawberry
Three to five days earlier than Michel's Early, twice as large and twice as productive. Send for circular.
West Jersey Nursery Company
BRIDGETON, N. J.

1,300,000 Strawberry,
Raspberry, Blackberry, Asparagus, Early Cabbage and Tomato plants. 50,000 Lucretia Dewberry. Order our 1902 Catalogue at once, and see our prices, discounts and premium plants we give away to our customers.
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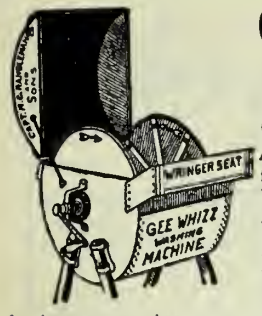

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Birds and the Farmer

A reader of the Western Fruit-Grower asks that we try to arouse an interest in the protection of birds, that they may help in the work of destroying insects in the orchards and fields. This is certainly an important matter, and one to which too little attention is given. At our horticultural meetings papers are read on the subject, but when we go home we forget all about what was said. Nothing is done.

Now, there are laws for the protection of many of our best friends among the birds, and these should be enforced. It will rest with farmers to see to their enforcement, too. And they must set a good example by not killing the birds themselves. The other day we received a letter from a Colorado subscriber, in which he enclosed a notice which the Boulder Fruit-Growers' Association has had printed and which the members put up throughout the country. These notices are printed on muslin, and read as follows:

"Notice—Protect the Birds.—It is a misdemeanor, according to law, to kill birds, the penalty being fine and imprisonment. All persons found violating the law will be prosecuted. Boulder Fruit-Growers' Association."

C. E. Moyer, who sent the notice, says that the society feels that the work is bringing results, and that they hope to save the feathered friend of the farmer. This is practical work, and we hope it will accomplish what it is intended. The notices are 10x12 inches, so that large type is used and the inscription can be read at a considerable distance.

And in this connection we would call attention to a paper which was read by W. O. Emerson before the California Fruit-Growers' Convention, as published in the California Fruit-Grower. Most of the paper, of course, concerned birds of California, many of which are not found here, but some of his remarks were appropriate everywhere.

"If it were not for our feathered tenants about us, our existence would be only for a few short months of hard battling against the hordes of insect pests. It is only within the last few years that any attention has been given to the investigation of bird foods at the hands of ornithologists. One of the groups of birds which should have more protection given them are the raptores, or birds of prey, such as owls and hawks.

"In referring to Bulletin No. 3 on Hawks and Owls by Dr. A. K. Fisher, United States Department of Agriculture, we find that out of 2212 stomachs examined, only 3½ per cent contained poultry and game, while 56 per cent were mice and other mammals, while 27 per cent was of insects. In this analysis of the stomachs of hawks and owls it will be seen that a large number of rodents are destroyed, resulting in the farmer's welfare.

"A few words as to the benefits derived from the owls (Strigidae) by the farmer and orchardist. The barn owl takes precedence as being most beneficial about the orchard, field and farm buildings. They will destroy more rodents in one night's hunt than a dozen cats, six mice and two or three gophers being a small bag for one owl and its brood. Gophers go largely to make up its diet and it is not uncommon to find five or six in its nesting or roosting places in hollow tree limbs, or even in steep holes in banks. The general color of the barn owl is ochraceous-yellow, more or less speckled or marbled with black. The eyes are black and the feet are feathered to the toes.

"One of the smaller cat-like owls, known as the screech owl, or mottled grey and black, spends most of its time among the orchard trees and shrubs catching great numbers of small mammals, crickets, beetles and other insects. Out of 255 stomachs examined of this little owl, ninety-one contained mice, 100 insects and forty-three empty, showing the amount of good they do among our trees. Other species of owls beneficial are the burrowing owl, short-eared and long-eared owls. The former is seen about the holes of squirrels and has the odd habit of trying to screw its head off if you pass around him. This owl occupies an important place on the farm in keeping down small rodents. The short-eared and long-eared owls are great mousers, as also is the great horned owl, who will, when chance comes his way, take a roosting chicken out of the trees or bushes."

Now, these are birds on which most farmers make war, and for whose destruction some states have even paid a bounty. According to this statement these birds are of vastly more benefit than harm. Of the insect eating birds, Mr. Emerson says:

"The farmer and fruit-grower have not, as a rule, given the proper attention to the observation of birds' habits, nor have they had access to convenient information, but happily the times are changing so that our State agricultural stations are issuing important bulletins from time to time. Of the many other birds that are related to the farmer may be mentioned the meadowlarks and blackbirds, which I will call your attention to at another time. What orchardist in this convention has taken the time to spend an hour, much less a day, among the birds of his orchard? Or did you ever try to count all the birds seen or ascertain the number of times a parent bird carried insects to the gaping mouths of its young? These seemingly small facts play a more important part in the life of our trees than can be told in words. Take our little red-capped chipping sparrow, who builds its nest in your apple or pear trees; they will make from fourteen to twenty feeding trips an hour to the nest, and in some cases the animal matter counts up into ounces instead of grains, according to the demands of the young birds for food."

Mr. Emerson says our friends, the birds, should not be condemned because they eat of our cherries and grapes. "This can to a certain extent be remedied," he says, and as we all know, "by the planting of a few trees of wild cherry, elderberry or mulberry throughout the orchard or along the fence lines, as all birds prefer wild fruit to domestic when obtainable.. This will be noted where there are wild vines or berry-producing shrubs and trees. I have often watched the thrushes, robins and even some of the smaller fly-catchers feeding on the elder, wild holly or madrone fruits."

Birds will not do all the work of holding our insect enemies in check, but they will do a great deal if we will protect them against the ignorant and careless boys and the indifferent hunters. We shall be pleased to have brief suggestions from those who have practical plans for the protection of the birds, and we hope to be able to print the bird law of Missouri and Kansas, as requested by the Missouri Valley Horticultural Society.

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Maj. Holsinger's Department

FOR years I have been advocating the transplanting of trees whole, or without cutting the tops. We have contended the cutting the tops of a tree to equalize, or balance the roots was sheer nonsense. We have tried to show the fallacy of such treatment. Our education has been to "equalize the tops and root.' It is hard to divest ourselves of prejudices inherited from our ancestors. They have taught us that "a tree to be reset, the roots having been cut, it stands to reason that the top must be cut to balance or equalize, otherwise it will draw too much upon the roots and the tree will die." How many nurserymen are talking such stuff today? Most of them. There are a few, however, who have independence enough to cut loose from the teachings of the old and try the new. What is the result? I offer the following from H. S. Allen of Vilisca, Iowa, who wrote me last spring to know how to transplant his large apple trees. See what he says. The season was the worst in our memory for transplanting, yet his trees, some six inches, have gone through O. K. The time is coming to plant trees, and I hope to hear of others who have the nerve to plant trees without cutting the tops. If you don't have a whole lot of nerve, have a little, plant a few and determine this matter for yourselves. Mr. Allen says:

"It looks like I am your debtor to at least a letter in reference to those large apple trees I moved last spring. As I told you then, they were from two to six and a half inches in diameter of body and tops in proportion, never having been pruned. We moved and reset them with all the care we knew, wrapped some of the larger limbs with pieces of leather and guyed them securely to good stakes, so that they stood as firm as before. We did not trim at all, save a few small lower limbs that were very much in the way of digging and handling. As you know, the season was as unfavorable as we have had for many years. I cannot say that the job was a howling success, but some did full as well as I had any reason to expect, some are dead and several variations between, and it remains to be seen just what the result will be. Anyway I am not sorry we moved them, for if we lose, then the premises are bettered anyway, and we have a thousand or so left. It do not think the top of an apple tree should be cut back when it is reset, whether it is large or small."

I have been trying the past three years without success to get a cherry orchard. Have set three springs and one fall. I set each time of six or eight varieties, mostly Early Richmond, and have lost every time I set about 75 per cent; of last spring's setting about 90 per cent. I am going to set again next spring and would like to try some "natives," as you say, or seedlings, perhaps. My father, when I was a boy, had many cherry trees, all same variety, which we called Morello. They bore profusely, in fact they were at that time the universal cherry of the country, everybody had them all along down to past few years. I think they came from seed; they were hardy and I never knew of them being difficult to transplant. Most persons simply went to some neighbor and dug up the sprouts; in fact, the sprouting in some instances was near a nuisance, but we had the fruit sure in abundance. They made large trees, tall, and would grow in any yard or lawn, no matter how hard. The winter of 1898-99 killed all the old trees of this kind about here. I had eleven trees in my lawn which were all killed, and now I am trying to find the same. They were a sour cherry, but darker than Richmond.

Of all the trees I have bought the past three years of several nurseries, the trees seem to be of a dwarf or stocky shape, and hard to get a start to grow off, in fact a few surviving of my first setting, three years ago, are yet small, short trees, too stocky, I think.—J. L. Marshall, Lexington, Mo.

Evidently the cherry mentioned was the old Morello, which was so common all over this country a decade since. The common Morello, as we called it, was a dark cherry and trees grew to considerable size, much larger than our improved Morellos. Another cherry quite common east was the hearts and Bigerreaus. They, being on own roots, sprouted badly and were got and welcome for the digging. The latter do not flourish in our western country. All Morellos, when on own roots, will sprout, hence they are grown by budding or grafting on a Mahaleb or Mazzard stocks. I feel certain the only thing gained by growing on these stocks is they do not sprout. If in transplanting you should plant so the Morello stock touches the ground they immediately take root and the tree now stands on own roots and goes to throwing up sprouts. Care must be taken to keep the Morello stocks above ground. Sprouts taken from such trees possess all the characteristics of the parent, save in the sprouting. The tree is just as good in every other way. In these piping times of high prices of trees, I wonder that more of these trees are not planted. The Morellos are to be seen in many places where trees were neglected, growing a wilderness of young trees that could be used to good advantage. I shall plant many of these myself the coming spring and until cherries come below $200 per thousand.

Seedless Persimmons.—I am asked "where can the seedless persimmons be obtained!" I don't know. The only seedless persimmons I ever saw were exhibited by some Illinois party. While not absolutely seedless, they were very nearly so. Of those I tried nearly all had seeds. Some only one, some two. I secured some of these seeds, which I planted, and have two-year-old trees, that we will transplant in spring. That they will maintain this character is not by any means certain. The only sure way would be to bud the varieties having this quality. Just now a new variety of watermelon guaranteed to be seedless—Bah! When any one attempts to sell you such things be sure he is a fraud and say to all such, "get thee behind me Satan."

MO. VALLEY H. S.

The attendance upon the Misouri Valley, at February meeting was large and quite interesting. Vice-President Geo. W. Holsinger was in the chair. The new program for '02 was fully up to date and every number for February was represented. Are glad to present our readers with the interesting and valuable papers of Messrs. Butterfield and Gano. The paper of Mr. Baxter was received. We are exceedingly sorry that we were unable to secure it. Mr. Baxter is well equipped for his subject, being one of the most extensive grape growers in the West. We asked and received an interesting personal letter from our late vice-president, W. D. Cellar, who is sojourning in the land of fruits and flowers. It was read by our friend, ex-Senator Taylor in his own feliticious manner, and had the closest attention of the society. It is well worth perusing by all readers of the paper, and we hope to publish it later. We are sorry our friend has not been in the best of health, but opine he is improved as he directs in a foot note to address him at his old home in Edwardsville, Kan.

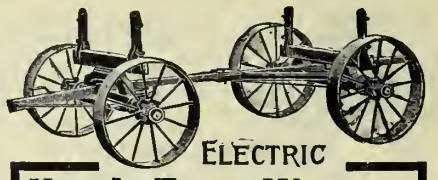
Prof. Sid Hare, superintendent of Forest Hill Park, came in during the session. This was a surprise, as we had learned that he had accepted the superintendency of some Connecticut park. We were indeed glad to know, on investigation by him, that life in the east was not all roses and that the flesh pots of Kansas City were sufficiently alluring to entice him back. The verdict on stone fruit was that the peach was "ous ca sphield."

Mr. Hare called attention to the scale insects. He had a New York pamphlet which treated of the various scales and that they were widely disseminated in the east and asked if they had yet appeared among us. He was assured that the San Jose had been found as close as Blue Springs and Independence, in Missouri.

Mr. A. Chandler said he had seen it in Ohio. Another answered "the cherry scale was very common among us," but it is comparatively harmless.

Mr. Chandler had a paper issued by the Audubon Society asking much information on the buds, whether increasing or diminishing? What was necessary to protect them, etc. Having heard Prof. Hare read a paper on buds last July, we asked that he be invited to give us a talk on this subject.

He said: "The worst thing to endure was the boy with his gun. They come from the towns in numbers and will kill any bird that they encounter. In mewing along the hedge he found twenty birds shot that had fallen inside



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WESTERN FRUIT-GROWER
St. Joseph, Mo.

the hedge where they could not be found. There was any number of mocking birds, orioles, medow larks, etc.—all insect feeding birds, or largely so. The damage to horticulture and agriculture by the destruction of the boy with his gun is greater than that caused by the women wearing them in their hats, for upon examination I find many of these are made from feathers and are only imitation."

Homer Reed suggested, "More efficient laws for the protection of the birds."

We remarked, "The difficulty of enforcing the law in Kansas. Our laws are sufficient, but how enforce them. As we drive to the farm when school is out we find the boys in squads with rifles and they will shoot at any and everything in sight. The boys are strangers, being Ishmaelites. I don't know them. They can outrun me and are soon lost to view. They may have killed a dozen birds, then if chased, go to the other side of the farm and the war is continued. Sometimes they will threaten you with their guns. They, if from the city, are dangerous. Only last fall one shot another by snapping his gun in play. Again, should you know the boy, he possibly is the son of your friend. It requires considerable nerve to have your friend's boy arrested."

Mr. Reed suggested the propriety "of having notices posted offering the one-half of all fines collected to the informant for prosecuting the offenders."

Mr. Wiffin said: "The law should be so amended that it will be the duty of the road supervisors to post the notices and arrest the offenders."

It was agreed to take up the question at our next meeting. A motion was made that the Western Fruit-Grower print the bird laws of both Missouri and Kansas. We agreed this should be done.

Mr. Hull of St. Joseph had a crate of berry boxes and was allowed to exhibit the same. He has an ad. in the Western Fruit-Grower. All can gather from it its value. A committee was appointed to confer with the growers of small fruit and the manufacturer with a view to advisability of their adoption. FRANK HOLSINGER.

REPORT ON STONE FRUITS.

(By W. G. Gano.)

The year 1901 was a year that will be long remembered by the people of the central west, and southwestern states. Some will claim they sustained some very disastrous losses, while many will claim that the year was very bountiful and prosperous. While it was a drouthy year, it was a very peculiar one. For there were very many peculiarities and very many valuable lessons that should be remembered.

The year 1900 was a year favorable to fungus growths or diseases. The mild winter of 1900-1901 appeared to be an aid to these diseases, the fruit-growers became alarmed as they never had been, and all of one mind, armed and equipped themselves with the necessary implements and materials to make an early and extended war against this most dreaded disease. But nature came to the rescue and fungus diseases were scarcely known in the past year.

Following the mild winter the spring of 1901 was rather late, and some of our early stone fruits did not ripen as early as usual.

Some of our medium early peaches, such as Family Favorite, partook of the characteristic of its parent, the Chinese Cling. And instead of it being a perfect free, as it naturally should be, it was in many instances : perfect cling, and the ripening season was extended three times longer than I have ever known that variety, and the last ripening was more of a semi-cling. The Carman, which is similar to the Family Favorite, partook somewhat of the same peculiarity. On the other hand, some of the late ripening varieties of both peaches and plums partook of the other extreme rather than their natural. The Chinese Cling was in some instances a perfect free, and I failed to find a perfect cling in any specimen of this variety that I examined.

The Blue Damson plum was a perfect free, a characteristic not natural for this variety of fruit. It also held on the tree and was in a marketable condition from the first of September to the first of December. The Wild Goose, Miner and Poole's Pride plums bore good crops and sold readily at good prices in our markets.

The fall 1901 was very favorable, indeed, for the developing and maturing of all our fall and late stone fruits. I do not recall any year that our late peaches developed and matured as they did last fall. Nor do I recollect of seeing green peach leaves on the trees in this locality on the 1st of December. Nor do I remember of ever knowing the peach buds injured at the temperature that they were injured at on last December. But the freeze coming so early and sudden, and the trees scarcely out of a growing condition, not having time to ripen up or evaporate the moisture, the bud being in its summer clothing, the buds were badly damaged.

Not having an opportunity to examine any other orchards other than my own, I find that the injury is not as great as I reported at our last meeting. I find the injury is the greatest in the young orchards of four and five years old. In these orchards most every variety is killed badly, except a few special varieties and of those Crosby and Champion have the most live buds. In my old bearing orchard of ten years old I find quite a sprinkle of live birds on most every variety. I think in this orchard possibly one-tenth crop is alive.

Of the new introductions of recent disseminating of the stone fruits we have but little to recommend to the planter for this locality having any great superiority over some of our older and established varieties. In cherries I know of nothing adapted to our climate and locality that equals the Morello type. What a grand acquisition to the cherry if we could find a cherry for this climate of a mild subacid quality, of the Reine Hortense, or Belle D'Choicy or Belle Magnafee and have the characteristic in tree of the Morello type and as fruitful as the Early Richmond.

The Plum.—One who has given but slight attention to the varieties of plums would be surprised at the number of the various plum species, not a few of which are indigenous to the United States and other portions of North America. With the introduction of the Japan plums a number of years ago, plum growing received a marked impetus, not that these importations in themselves proved to be of such great excellence. On the contrary, there are serious drawbacks to all of them, not the least of which is the unfitness of most of them for climatic conditions north of 36 degrees. But they have yielded so satisfactorily to the skill of the hybridizer in mixing readily with other species of the plums and producing choice new varieties, and the end is not yet. The eminent pomologists who have placed the lovers of choice fruits under obligations by their intelligent labors in the department of plums, are Luther Burbank of California, J. W. Kerr of Maryland, S. D. Willard of New York, H. A. Terry of Iowa, Theo. Williams of Nebraska and O. M. Lord of Minnesota. All of these gentlemen, as well as others, have added largely to our pomological knowledge and to our lists of choice fruits. Prof. F. A. Waugh of Vermont experimental station has written a very interesting volume on plum and plum culture. Mention is made of two peach-plum hybrids, Blackman and Mule, neither of which has ever produced fruit, though both are interesting on account of their hybridity. Mule is well known to be a hybrid between the Troth Early peach and Wild Goose plum. It was raised by J. W. Kerr of Maryland. Like Blackman, it forms blossom buds, but they are always abortive, never opening out or becoming fruitful. Nature seems to say concerning human effort in many things, "Hither shalt thou come, but no farther."

In the peach we have very many new candidates, some of which are being planted extensively. The most promising new varieties are Carman, very much the season and resembling Family Favorite; Fitzgerald, resembling Reeves Favorite; Crosby, said to be hardy in bud; Mathews Beauty and Emma, two large yellow free stone stone peaches resembling Elberta, but later, following up this king of all peaches in extending the season, which make them a very desirable acquisition. W. G. GANO.

Office of Missouri Fruit Experiment Station, Mountain Grove, Mo.

WHAT FRUITS SHALL WE PLANT THE COMING SPRING?

A broad question that cannot be answered in a few words or even pages. What shall we plant! Well, what have we and whtat ought we to have? First, if we already have more fruit than we can care for properly it would be well to stop planting and catch up. Fruit growers for the market, for profit as well as pleasure, should have just as much of the fruits ripening in succession as they can care for properly and market to an advantage. Strawberries, raspberries, blackberries and even dewberries should not be overlooked nor overdone in our planting plans. Vineyards should be kept up and if the old one is playing out plant a new one and give it better attention. Of course apples and peaches will be planted and deservedly, too, but they should not be planted exclusively by this class of fruit growers. Cherry orchards are fast playing out and there is a splendid opening for a proper proportion. We must plant a few pears, for they bring good results and have equal or better chances than some other fruits in favor now. Plant some plums, at least enough to fill the poultry yard; and quinces—oh, yes, a few, anyway, for these good housekeepers prize this fruit highly and if they can only have a peck in a season it will help that much.

As to varieties, we can do no better than stand by our old "stand-bys" until we know positively that there is something better. It is well enough to try somehing new, but they should be only trials; one or two trees or plants carefully selected from the list of the many that are promised to excel all others. To read the descriptions from introducers and from experiment stations we are led to believe there are many better than we have, but when these new varieties are compared to our grand old varieties they hold their own so well they, too, often fall short and disappoint.

See the grand old Ben Davis, yet so prominent in the list of profitable commercial sorts, how many varieties have been promised to excel this variety and now take their places down the list? Consider the long list of peaches; and still they come, sell high and yet it is doubtful if there will be more than two of the many that will deserve a place among, to say nothing of excelling, our present list.

We do not mean to cry down new varieties for only by them can we ever expect to improve, but growing fruit for market is uncertain enough, without taking any chances on varieties.

J. S. BUTTERFIELD.

Lee's Summit, Mo., Feb. 12, 1902.

Hubbard squashes selling in New England markets for $75 a ton, wholesale.

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Poultry Dept.

Conducted by W. P. Laird Oil City, Pa.

SUPERIORITY of the Pekin Duck—In deciding which is the best breed of the duck family, we must first consider the results that are to be expected. If we wish ducks to beautify an artificial lake or a pond on a gentleman's estate, there is no variety of the duck family more suitable for this purpose, as well as for eggs, flesh and feathers and we think no one will make a mistake in selecting the Pekin.

I do not consider that there is any "best" breed of chickens, but we do in the duck line. For instance, in chickens we have one particular breed exceeding in some characteristic but deficient in some other desirable quality, while in the Pekin duck we find the good qualities of other breeds with several important personal ones.

In summing up the merits of the Pekin duck let us compare with some of the other good breeds the following which must be considered in any breed, namely: Rapid growth, hardiness, number and fertility of eggs; adaptability to climate, disposition, color and beauty.

In comparing the merits of the exceptionally good breed with other breeds, we will take up the desired qualities of an ideal duck and compare the Pekin with the other breeds.

First as to the adaptability of our climate and hardiness of constitution, the Pekin has no equal.

The Pekin duck was introduced into America less than a quarter of a century and from a warmer climate than many of them now enjoy is putting them to a test that would try any fowl's constitution. But the Pekin has stood the test and have found that they are the hardiest of all breeds of ducks, hardier than even the proverbial little puddle duck.

Ducklings as well as old fowls will stand greater excess of heat or cold than will any other variety of the poultry family. If the Pekin is given a bed of dry straw it matters little to her which way or how cold the wind blows. I do not mean by this that any treatment is best for the success with the Pekin duck, but mention it as a proof of the Pekin when put to the test in our climate.

It seems to make little difference whether she be taken to the sunny south or our own cold and desolate climate, where we have snow and cold weather six months in every year. No breed of the fowl has yet been found that will give us something for nothing.

It is true the Pekin as to size is equaled by few breeds and surpassed by fewer. They have no superiors in rapidty of growth.

Some have claimed that the Cayuga matures as quickly but has the disadvantages of being a later and less prolific layer, is of less value as a feather producer and has less progeny.

Take it all in all, other breeds may equal or even excel in some respects, but they will be found deficient in enough good qualities to keep them in the back yard.

One good quality to be found in the Pekin is they require little range, never wandering over a forty acre field.

All breeds of ducks have a disposition to wander more than chickens, but the Pekin, as the most domesticated of ducks, lacks this disposition.

PRACTICAL POINTERS.

It is surprising how much green feed growing chicks will consume.

Hens and pullets that are chilled will not lay, and stock with frozen combs are kept at a loss.

Poultry houses in which the combs of the birds will freeze is not warm enough for comfort.

If you live on your own place it is of course best to build substantial houses and yards that will be satisfactory for years.

At this time of the year it is economy to feed a variety if you wish eggs. Scatter a little millet seed in the scratching material, and between meals you will find the layers hustling for it.

To the beginner it is safe to say: "One variety or breed is enough."

If your layers are taking on too much fat, feed more oats and less corn.

It takes ducklings from two to three days to clear the shell after they begin to pip.

A teasponful of tincture of iron put in the drinking water is an excellent tonic for the birds.

Have you a mortgage on the farm? Give the hens a chance to cancel it. Hens mean business if you do.

While there are one hundred and one odd things to be done on the farm, the poultry should never be neglected.

To lay eggs your hens must of a certainity be made to work and you giving then all the elements that form an egg.

Lime in some form is indispensable for the formation of egg shells and should be within reach of your layers at all times.

Ducklings thrive best and grow faster when allowed only water for drinking than when they are allowed free access to water.

It is the best plan we think for some member of the family to look after the interests of the hens and not trust it to the hired help on the farm.

The main point in hatching and rearing ducks and chicks is to follow nature as near as possible and not any preconceived notion of your own.

Give your birds all the range you can spare. The less room they have the more particular you should be as to cleanliness as this is all important.

Put dry earth on the floors of your poultry houses during the fall. There is in fact nothing better for the purpose than dry earth and nothing that comes so low as to cash.

If your yards have been used for several years plow them up in the fall, (or spring is better than not at all,) and sow them to rye. This will purify them besides giving your birds an abundance of green feed.

The time required for hatching chickens is 21 days; for ducks 28 days; for partridges 24 days; for guineas 25 days; for turkeys 28 days; swans 38 days; pea fowls 28 days; ostriches 42 days and geese 30 days.

Its poor policy to keep your layers closely housed, as we are generally compelled to do, (and have for the last three months,) and expect eggs to hatch satisfactorily as they do in warmer weather. It can never be done.

Ducklings are easy to raise, (when you know how,) and will paddle their own canoe after two weeks of age. They require equally as much heat as as chicks for the first ten days, then they will stand more exposure than chicks.

Fatten, dress and market all your hens as soon as they cease laying.

Either keep over for your next fall and winter layers, early pullets of your own raising, or buy some of a reliable breeder. These will begin to lay in October and November.

If you are saving up eggs for hatching purposes, keep them in trays, keep in a cool room or some ventilated cellar. They should be turned every few days. So treated, you can to advantage keep eggs three weeks. Use a damp cloth in cleaning eggs but never put them in a basin of water and wash.

If you have scratching sheds attached to your laying houses never let your birds out on rainy, disagreeable days or when there is snow on the ground. Keep them in and with the proper care, feed, etc., early hatched pullets will be giving you a liberal supply of fresh eggs, which at this time of the year are selling for a good price.

If you have not the time to spare from your farm operations, start up a business for the good house-wife, son or daughter. Agree to see that the heavy work is done and they will no doubt attend to the rest better than you would. And if they make a success of the business, do not act the dog and stick the proceeds in your pocket, as they desire a share of it.

Buy only young birds and healthy ones. It is only by practice that one learns to detect age in a fowl, while there are a few signs that may be relied on in a general way. A pullet is usually trim and graceful, her legs are smooth and delicate, her comb and wattles soft and fresh looking. When she grows older she takes on flesh, her legs become hard and rough and her comb and wattles dry and tough. The shrewdest of beginners may be deceived in spite of every care; he must learn by experience.

Good egg testers are cheap and easily obtained.

Duck eggs should be tested out on the fifth day of incubation and hens eggs on the eighth day.

On an average if you get a chick for every six to eight eggs put in the machine, you are doing well.

Unfertile eggs, contrary to the opinion of many, are better for culinary purposes than the average store egg.

Good breeding and good feeding are so closely related, that they must go together—one is useles without the other.

It is a bad plan to ever throw large pieces of egg shells into the pens, as this opens the way to teach your birds to eat their own eggs.

There are two causes for the bursting of the egg passage, which is sometimes fatal. One is a fatty degeneration; the other frequent cause is malformation.

Wild birds are uniform. Domestication causes a breaking up of color, and a variety of shape. When a man begins breeding to a standard by selection, he gets uniformity again.

A scrub farmer thinks scrub poultry best. This same farmer is not much "stuck" on thoroughbred stock of any kind. Poor fellow! I am afraid the mortgage will remain after he is dead and gone.

Clean out your poultry houses once a week and under the perches every morning. W. P. LAIRD.

POULTRY AND THE GARDEN.

They are people who declare they cannot have a garden for their own or neighbor's poultry, and again we will hear them say they cannot keep poultry because they have a garden and it is not fenced. Now poultry should not be in the way of gardening nor should the garden be an obstacle to the poultry business. There is, or should be, an alliance between poultry raising and gardening that should be beneficial to both industries. In the first place it is the nature of the hen to want to scratch, and naturally the garden affords the most convenient and inviting place to do the scratching. At certain seasons of the year scratching would be fatal to the success of a garden, but at others it would be of lasting benefit.

A garden should be fenced in and should be contiguous to the poultry quarters. All the compost from the poultry quarters will be found immensely valuable as a fertilizer for the garden. At seasons of the year when little or no damage can be done to the

EVERY ONE A BEAUTY.
This is true of the machine and also of the chicks it hatches.
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It hatches all good eggs, every time.
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turn it into a strong, vigorous, bread-winning chicken, that will work for a living around the farm yard. Here's something new in catalogues—5 different editions, in 5 different languages. English edition sent for 4 cents; others free. Covers the poultry question like a blanket.
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garden the chickens can be permitted to run there, and it is wonderful to observe how many enemies to garden truck they will get and thus prevent actual loss. As a rule a hen scratches in the garden for something that she finds there that will do her good and will do the garden but little good. Unfortunately her instinct has not educated her so she can avoid scratching up the rows of vegetables in her hunts for insect enemies. Between the garden and the poultry house a very good living can be furnished the family. Much of the surplus that grows in the garden can be used as a poultry food in winter and to compensate for it the poultry will furnish a fertilizer that will be very beneficial indeed.

We have had a garden for many years and we have had poultry at the same time. The chickens were kept from the garden for a number of years and the insects led us such a life that we thought we would have to give up either the gardening or the chickens. The fence became old and out of repair and chickns were permitted to go into the garden at times, the young ones all the time, and we soon found that they were a great help. We then made arangements to have them visit the garden at times when they could do no injury and since then we have kept them in conjunction with the garden. Every worm or bug they get is one less to injure the garden truck. Of course, there will be times when the poultry will have to be kept out of the garden. —Homestead.

CHICKENS AND STRAWBERRIES

Here is a great combination. The chickens, to furnish manure, eat up the bugs and insects and to provide spending money while the berries are being grown.

Bone meal and meat are the great fertilizers for strawberries. Add a little potash and it is superior to the best Peruvian guano.

It must be ground fine and no machine on earth can grind it so fine as the gizzard of a chicken. Bones and scrap meat can be had cheap at all the meat markets. Feed it liberally and the chickens will shell out the eggs as well as the fertilizer.

A good flock of chickens is far better than a cow stable.

Compost the droppings with about four times their bulk of any loamy soil as fast as you clean out the roosts. The compost should be put under cover and kept dry. Mix well and sow broadcast and harrow in thoroughly before setting th plants.

Never mix ashes or lime with the manure before putting it in the soil. This would act as a disinfectant and set the nitrogen free so it will escape. Use land plaster under the roost. This absorbs the ammonia and holds it until it is in the soil.

The manure is so strong when not diluted with the soil that if any quantity comes next to the roots it will burn them and thus injure the plants.

The above is an extract from R. M. Kellogg's book, "Great Crops of Strawberries and How to Grow Them."

Joe Farmer, a successful Plymouth Rock grower of Ohio, tells in the National Stockman how he feeds his chickens as follows:

"I take fine bran, two parts; coarse shorts, one part, and add to this one morning one pint oil meal, the next morning one pint meat meal. This is mixed thoroughly with milk or water and fed to 200 chicks. At noon I feed all the wheat they will eat up clean. At night I give them first a light feed of corn, then give them all the nice clean oats they will eat. I allow them free range and can see them grow."

RAPE FOR EARLY SPRING FEED.

Each season's results at the Oklahoma experiment station give further evidence of the value of the rape plant as a source of green feed in this country. Not only has it proven a most desirable spring and fall pasture crop, but a crop that will furnish a large quantity of green feed during such a drouthy summer as that of 1901. The plant lived through the mild winter of 1900-01 but the zero weather of the past winter killed all the plants.

The rape will be one of the first plants available for feed in the spring and a large area should be put out, as feed is scarce and high priced.

The value of the plant lies in the fact that it will furnish a large amount of green feed in a short period from the time of planting. The plant resembles the cabbage in texture and color but the growth is erect and two to three feet tall. Good rich soil is necessary for a large growth and should be put in fine tilth before seeding.

The plant is proof against frost and may be seeded the last of February or early March in Oklahoma.

Broadcasting will do for temporary patches, but if the crop is wanted to last through the summer it should be in drills and cultivated. Do not pasture too close if continous growth is desired. For broadcasting use three or four pounds per acre. In drills one to one and one half pounds will be required.

Prof. Thomas Shaw says that ten sheep may be fattened on one acre of rape in Minnesota.

Twenty-three tons of green feed per acre have been taken off at the first cutting at this station.

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There are ten letters, represented by ten dashes, omitted from the above words, and when the proper letters are supplied the completed words will describe the Picture and form a correct solution of the Riddle.

CAN you rightly guess what words are represented in the above picture? If you can you may win **A CASH REWARD.** This is a new puzzle, and if you are smart you can, with study, give a correct answer and win some Cash. **We do not want one cent of money when you answer this Study.** You have absolutely nothing to pay for a guess, so the cash you receive will be clear gain. Only one answer is allowed you, so **Try** and **Win.** This is a free contest and contains no element of chance and we positively guarantee to pay all patrons **Cash** for every correct solution. If your answer is correct you will hear from us promptly. Address, **Home Remedy Co., 79 Temple Building, Montreal, Canada.**

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These remnants are from the richest product of domestic and foreign looms, in all the shades.

To quickly introduce into every home our Electric Balm Complexion, Toilet & Bath Soap, we offer 2,800 extra large genuine silk remnants **absolutely free** to every one answering this advertisement & promptly accept the proposition sent with every package of Soap & write at once to the **ELECTRIC SOAP WORKS, N. Y. City, 27 Third Ave.**

Think of it each & every one can get 2,800 extra large remnants from the choicest & most expensive silks, selling high as $2.50 a yard, the richest variety of brilliant colors & exquisite patterns ever offered **free,** every piece large enough to be cut or worked into solid blocks of 6 to 9 inches square on stand covers, art squares, sofa pillows, tidies, curtains, scarfs, portieres, crazy quilts or slumbering robes, producing the royal & magnificent effect so much admired & sought after by art stores, fairs & others, some selling high as $500.00 for a single article. This is no catch penny scheme but a straight offer to advertise an honest business. It is a rare opportunity & will not appear again. If you wish to take advantage of it write at once for a package of Soap which cleanses & beautifies the skin, feeds the tissues giving the most sallow complexion a clear youthful appearance.

COUPON NUMBER 4003

CONDITION. With your application you must pin this numbered coupon to your name & address & send it to us at once & you will receive **free** a package of the celebrated Electric Balm Toilet & Bath Soap which beautifies the complexion, **cures** pimples, blotches, freckles & all facial eruptions exactly as described above, sent same day this coupon is received, all charges prepaid. Instead of spending thousands advertising in magazines, we advertise by sending the goods direct for you to try knowing you will appreciate the present & show them. If you want 2,800 extra large remnants from these marvelously beautiful silks **free** write at once for a package of Soap.

THE ALABAMA PEACH IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring, and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries

also a success. Also general farm crops—Sugar Cane, Tobacco, Rice, etc.

300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

FOR MAPS, FOLDER, ETC., ADDRESS

ALABAMA LAND & DEVELOPMENT CO., MOBILE, ALA.

GEO. KILBORN, Secretary. HENRY FONDE, President.

DON'T SET HENS the same old way when our new plan beats it 10 times. 100 Egg Hatcher Costs Only $2. Over 94,000 in use. 1000ds test'ls. 5000 agents wanted for 1902, either sex. Pleasant work. Big profits. Catalog and 10c Egg Formula FREE if you write today Natural Hen Incubator Co., B136, Columbus, Neb.

GREIDER'S FINE CATALOGUE of prize winning poultry for 1902, printed in colors, illustrates and describes 50 Varieties of Poultry; gives reasonable prices of eggs and stock. Many hints to poultry raisers. Send 10c in silver or stamps for this noted book. B. H. GREIDER, Florin, Pa.

A MILLION TESTIMONIALS DON'T CONVINCE 30 DAYS TRIAL WILL

Self-Regulating

Our 50 egg compartment hatchers have advantages over all other incubators. Bantams at $5, $9.50 and $15 for 50, 100 and 200 egg sizes. Hatch every good egg. Send 2 cents for No. 69 catalogue. BUCKEYE INCUBATOR CO., Springfield, Ohio.

POULTRY PAPER FREE. Your name and address on postal card mailed to Reliable Poultry Journal, Quincy, Illinois, will bring you free sample with elegant full-page color plate frontispiece showing in natural colors a pair of standard fowls, reproduced from oil painting by Frank L. Sewell World's greatest poultry artist. Sixty-eight to 160 pages monthly, 50 cents a year. SEND TO-DAY FOR FREE SAMPLE.

The Fertile Egg

In a Victor Incubator always yields a vigorous chick. Simplest, most reliable, cheapest, first-class hatcher is the VICTOR INCUBATOR

Thousands in use; no complaint. Catalogue 6 cents. GEO. ERTEL CO., Quincy, Ill.

ORNAMENTAL LAWN FENCE

Save 20 to 25 per cent. by buying direct from manufacturer. MADE OF STEEL. CHEAP AS WOOD Special Prices to Churches, Cemeteries and Large Parks. 32 page Catalog free. COILED SPRING FENCE CO. Box 413 Winchester, Ind.

SANDUSKY & Co.

GENERAL COMMISSION

Wholesale Fruits and Produce

116 S. Third Street, and 115 Market Square, ST. JOSEPH, MO.

BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets. Egg Case Material. All kinds of Baskets in stock.

Established 1884.

Free INFORMATION ABOUT **Hens**

By poultry editor of Vick's Family Magazine, Rochester, N. Y. Blank and sample copy FREE

C. S. HARRISON'S SELECT NURSERY

York, Nebraska

Has a superior collection of Evergreens, Trees, Shrubs and Flowers. A fine lot of Columbines, Clematis, Oriental (perennial) Poppies, Beautiful Imported Phloxes, and the finest collection of Paeonies west of Chicago. Nearly 200 varieties. Send stamp for Paeony pamphlet.

Also Rocky Mountain Evergreen seeds.

Kansas City Nurseries

Located in the center of commerce, railroad facilities to nearly every point in Missouri, Kansas and other states without change or transfers. Good first class Fruit and Ornamental Trees, Shrubs, Roses, Vines, etc. A very large assortment for the City and Country trade. Write for our eighty-page descriptive catalogue. Address

BLAIR & KAUFMAN.

233-34 Rialto Building, Kansas City, Mo.
Long Distance Telephone No. 866 Red.

Three Months Free

We will send you the Twentieth Century Farmer, a 24-page illustrated weekly, the best family agricultural paper published either East or West, to your address for three months absolutely without cost, if you live west of the Mississippi River, and will send us a list of not less than forty names and addresses of prosperous English speaking farmers, or stock raisers, living in your county. THE TWENTIETH CENTURY FARMER, 1623 Farnam St., Omaha, Neb.

The Sugar Bowl of The West

Is in the Arkansas Valley of Colorado.
All records in sugar-beet culture have been surpassed in this valley.
This is the home of the famous Rocky Ford Cantaloupe and the Big Red Apple.
Sugar Beets, Cantaloupes and fruit pay well. No other crop anywhere pays better.
The whole valley is under irrigation.
Irrigation is an insurance against loss of crops through drought or flood.
There is only one way to reach this wonderful valley, and that is via

The Santa Fe

Address, W. J. BLACK, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia..	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines ..	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison	.75	1.00
Poultry Farmer, Des Moines	.50	.70

Give name and address plainly in each case.
WESTERN FRUIT-GROWER,
St. Joseph, Mo.

Want a Farm Paper?

The Practical Farmer of Philadelphia is one of the best general farm papers published. Its regular rate is $1 per year, but we have arranged to offer it in connection with the Western Fruit-Grower, both for $1.

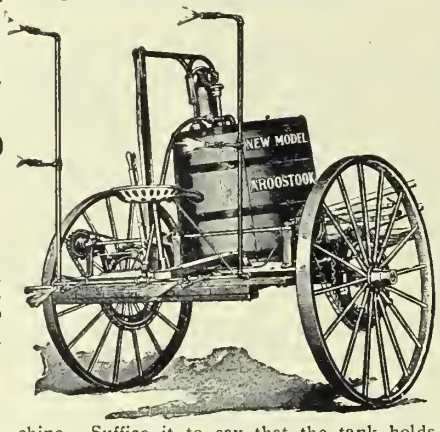
Two Papers for $1.
Send subscription to
Western Fruit-Grower, St. Joseph, Mo.

Early Harvest

and other blackberry plants for sale at right prices.
T. B. MILLER, Springdale, Ark.

A NEW SPRAYER.

Probably the completest exhibit in its line at the Pan American Exposition was that of the Field Force Pump Co., of Lockport, N. Y., manufacturers of pumps and all kinds of spraying apparatus. We have been informed that the above company found their exhibit a most profitable venture for them and that even up to the present time inquiries and orders are received from those who looked the machines over during the Exposition. One of the most interesting of their machines to the practical observer was their new model Aroostook Sprayer, a cut of which we are pleased to present herewith. As will be seen from the illustration, this is a machine of large capacity and by means of the extension nozzles six rows of potatoes or other vegetables can be sprayed at one time. Space will not permit a detailed description of this ma-



chine. Suffice it to say that the tank holds 100 gallons, has double brass cylinder pump, all working parts of brass, not leather or rubber valves to rot out or decay and it is fitted with mechanical devices for keeping the solution agitated, and with brushes for cleaning the strainers so that the solution delivered to the nozzels is of uniform quality of the exact strength desired. The machine is drawn by one horse and the driver is entirely relieved of all physical effort in running the pump, it being simply necessary for him to guide the horse, the machine doing all the rest. As shown in the cut, the nozzles are raised to permit the machine passing easily through gates,etc. To show the capacity of the Aroostook, it may be said that it will spray thoroughly 40 acres of potato, cotton, tobacco or vegetables in one day, and without waste of solution. Where it is desired to use it for orchard work, there are fittings easily applied, which adapt it perfectly for the purpose.

The name Aroostook was suggested by the first of the machines being built for the use of the potato growers in Aroostook County, Maine. The above is simply one of the many machines built by this company, their line embracing sprayers of even greater capacity than this, down to the small hand affairs. Their line of Knapsack and Barrel Sprayers is especially complete and meets every need of the most progressive and up-to-date growers. Their Orchard Monarch for large orchards, is perhaps the very best of the large machines. This concern is one of the oldest in the business and any of our readers who contemplate buying a Sprayer this season will do well to write for their free catalogue, which is gladly sent on request. Address Field Force Pump Co., 35 Market St., Lockport, N. Y.

The Peppler Six-Row Sprayer, which has been advertised for some time in our columns, and which is manufactured by Thomas Peppler of Hightstown, N. J., certainly leaves little to be desired by the man who desires to spray potato fields, orchards or vineyards. Spraying to be at all successful and efficient must be done with promptitude when the necessity arises. A few days neglect, or too much time employed in the work, may mean the entire loss of the crop. It will be apparent to the reader therefore, that a sprayer that will cover six rows of potatoes and show a like capacity in spraying trees and vines possesses very many advantages. This machine is guaranteed by the maker to spray thirty acres of potatoes, cotton or vegetables in a day. It is simple, practical and durable and is properly equipped for all kinds of work when received. It at all interested in spraying machinery, write the manufacturers for catalogue, prices, etc.

The catalogue of B. F. Smith, Lawrence, Kan., is at hand. Mr. Smith is one of the best-known small fruit men in the West, and his catalogues are always interesting, for the reason that there is no overdrawn descriptions found in it. Mr. Smith doesn't believe in this sort of thing, and endeavors to keep his catalogue down to a practical basis

Mr. Smith has a good lot of plants this season, and will gladly quote prices or send catalogue to those interested. See his ad in this issue and write him.

Those who are interested in spraying should send at once for a copy of the annual catalogue of Goulds Manufacturing Company, Seneca Falls, N. Y., for it contains much interesting information. The different patterns of pumps manufactured by this company are shown, and prices quoted. And the Goulds Company, by the way, makes every style of spray pump which can be used to advantage, from the smallest size knapsack sprayer to the big power pump, with gasoline engine attachment. The well-known Kerowater pumps, which mix oil and water, are made by this firm. We advise our readers to send for this catalogue, for it will tell you much which you should know about spray pumps. Mention the Western Fruit-Grower when writing.

During the next sixty days in the history of the country will as many incubators be placed in operation as during March and April, 1902. The reason therefor is obvious. The past, present and prospective future high price of poultry and eggs makes the market more and more desirable, as is evidenced by the fact that in many states the poultry product far exceeds that of any other. Eggs are too high-priced to be wasted, and hence it behooves those who intend raising chickens this season to purchase an incubator that will hatch the largest percentage of eggs. The best poultry raisiers in the country positively asert that the one giving the best results is the Klondike. With its nicely adjusted automatic regulator, its absolutely perfect radiation and ventilation and it unapproachable moisture system, the Klondike company is justifiable in guaranteeing perfect satisfaction or money refunded. Read their advertisement in another column, and in writing for catalogue kindly mention this paper. Address Klondike Incubator Co., Des Moines, Iowa.

FLOWER AND VEGETABLE SUGGESTIONS.

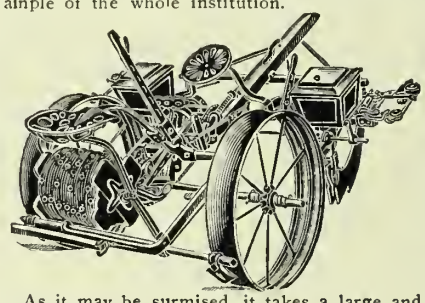
If you are going to grow vegetables this year or beautify your home with flowering plants you should take advantage of the offer of James Vick's Sons, of Rochester, N. Y., and send for a free copy of Vick's Garden and Floral Guide for 1902. The hints and directions it gives for success with the vegetable or flower garden can be depended upon. It is a trustworthy book prepared by men who are qualified by many years' experience to give sound advice. Some of the floral novelties that secured for the Vicks the gold medal at the Pan American Exposition are shown in their natural colors and throughout the Guide is illustrated from photographs which make it easier than ever to choose desirable varieties. Among the specialties in the Guide are Rochester Beet, Lemon Cucumber, Golden Self-blanched Celery, Crisp as Ice Lettuce, Irondequoit Muskmelon, Vick's Daisy and Grodus Peas, Vivk's Scarlet Globe Radish, and Earliana Tomato.

This expensive book is mailed free to persons who write to James Vick's Sons, Box 1350, Rochester, N. Y., and mention the plants or seeds in which they are specially interested.

A RELIABLE FIRM.

Attention is called to the advertisement of M. Butterfield & Son, Lee's Summit, Mo., elsewhere in this issue. This firm not only has a straightforward ad, but has an excellent grade of nursery stock. The members of the firm are well known, for the nursery has been doing business for years, and the splendid trade which has been built up has been possible only because of the character of nursery stock sent out. A feature of the catalogue of M. Butterfiel & Son this year is a series of collections of different kinds of fruits and ornamentals, which are offered at reasonable rates. Through these collections one is enabled to secure a variety for testing at slight expense. We recommend that our readers send list of their wants at once, for prices and also to ask for the special collection list, which is free for the asking. Mention Western Fruit-Grower in writing.

The Marvin Smith Company, of Chicago, whose advertisement appears regularly in these columns, differs from all the mail order houses we know of in being specialists. They make a specialty of handling agricultural implements, farm tools, vehicles of all kinds, and a complete line of saddlery and harness. They have specialized to such an extent along their chosen lines until now they claim to be the largest agricultural implement mail order house in the world. From our knowledge of of this firm and their method of doing business, we are not disposed to dispute this claim. Some idea of the completeness and thoroughness of this house may be gained by a single instance. In feed grinders alone they handle over fifty-seven kinds, styles and varieties. This may be taken as a very fair example of the whole institution.



As it may be surmised, it takes a large and complete catalogue to contain, illustrate and describe the various lines handled by this firm. Their large general catalogue contains a list of more than fifteen thousand articles and in every case the description is plain, direct and truthful and the prices which are always such as to save the farmer money, are marked in plain figures.

More than all else we like their methods of doing business. They tell you exactly what they have, exactly how it is made, exactly what it will do and what it will cost. They never leave a customer dissatisfied. They do business on the principle of "once a customer always a customer," and treat their clients acordingly. It would seem to us wise to have their catalogue in the house ready to hand at all times. Having the information in the "nick-of time" is almost sure to save you money. Write them for a catalogue which they will mail you free if you mention this paper.

BOX-STAPLING MACHINE.

Everyone knows what a tedious job it is to make berry boxes by the old plan, where tacks are used. All who have done this work will be interested in the ad of the Saranac Electrical Mfg. Co., St. Joseph, Mich., elsewhere in this issue. This firm makes a wire-stapling machine for this purpose, which saves time and labor, and, consequently, saves much money. The company reports having a splendid trade from among the readers of the Western Fruit-Grower, but we know there are hundreds more who should have this machine before time to make berry boxes. Look up the ad, which is illustrated, and when you write for catalogue mention the Western Fruit-Grower.

A GOOD SCHOOL.

We have received the catalogue of the Chillicothe Normal Business and Shorthand College, Chillicothe, Mo., and commend it to all our readers who have sons and daughters who wish busines training. We are aequainted with Mr. Allen Moore, president of this school and have visited the institution. It enjoys an excellent reputation among those who know of its work, and has hundreds of graduates in good positions throughout the country. This school has an advertisment in this issue. Our readers should see it, and if interested send for catalogue.

GOOD PRUNING SHEARS.

During the past month we have sent out many pairs of the Levin Pruning Shears, advertised elsewhere in this issue, and have yet to receive a word of complaint. A. S. Perry, Yukon, Okla., says: "They are the 'powerfulest' shears made."

Order a pair at once. They are guaranteed by the manufacturer and by us. The price includes postage.

Platt's Commercial College

Ballinger Bldg., 7th and Edmond ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

St. Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand, Typewriting, Penmanship and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. Catalogue free. E. E. GARD, Prin., St. Joseph, Mo.

SEVEN GREAT SCHOOLS

Chillicothe Normal School
Chillicothe Commercial College
Chillicothe Shorthand College
Chillicothe Telegraph College
Chillicothe Pen-Art College
Chillicothe School of Oratory
Chillicothe Musical Conservatory

Last year's enrollment, 678. $130 pays for 48 weeks' board, tuition, room rent and use of text books.

For Free Illustrated Catalogue, address
Allen Moore, Pres., Box G, Chillicothe, Mo.

MONEY IN POULTRY The farmer who raises for market; the beginner just starting in the business; the village poultryman; the keeper of a "few hens," on a city lot, will find help in THE POULTRY KEEPER.

An Illustrated Poultry Monthly Magazine. One of the oldest and best. Established in 1884. Contains advice on mating, feeding, housing, remedies for poultry aliments, special articles by experts. 50c per year, 10c for 3 mo. trial. Poultry Keeper Pub. Co., Box 902, Quincy, Illinois.

1,000,000 Peach Trees

Tennessee Wholesale Nurseries, Winchester, Tenn.

Exclusive growers of peach trees. June buds a specialty. No agents traveling, but sell direct to planter at wholesale prices. Absolutely free from all diseases and true to name. Write us for catalogue and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest Peach Nursery in the world.

J. C. Hale, Propr., Winchester, Tenn.

Strawberry Plants

Purity, Vigor and Quality

Are the characteristics of my plants.

The great drought was terrible, but it left me about 1,000,000 Plants of the FINEST QUALITY I HAVE EVER GROWN. You will appreciate what this means when I tell you that I filled more than 1000 orders last spring and did not receive a single complaint from quality of stock. GOOD PLANTS are scarce this year all over the country, and will be higher in price than usual, but Strawberries will be still higher for several years to come. It will be at least 4 or 5 years before the usual acreage is reached. It will pay you to plant liberally this Spring. Send for my free price list today.

DR. E. L. BEAL, Republic, Mo.

2,000,000

Extra Choice Fruit and Ornamental Trees, Small Fruits, Roses, Shrubs, Vines, Etc. Superb Stock; must be sold quick. It will pay you to get our prices.

ALPHA NURSERY CO., Alpha, Illinois

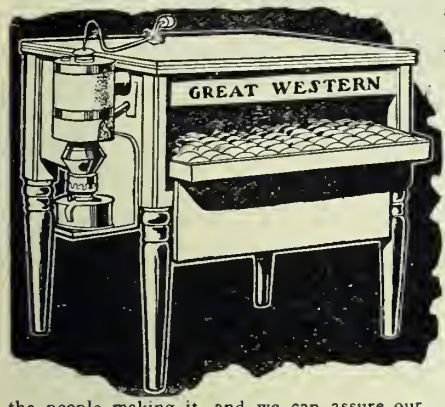
A KIEFFER PEAR ORCHARD

For one dollar we will send by mail postpaid 12 nice little one year old Kieffer Pear trees. Order at once and ask for prices on other nursery stock.

J. BAGBY & SONS CO.
Box 25, New Haven, Mo.

WELL LOCATED.

Among several new large advertisers with us this season is the Great Western Incubator Co., of Kansas City, Mo. Any one who has watched the wonderful development of the poultry business during the recent years, has noticed that there has been a most remarkable growth in what eastern people call "South-west." It is only natural, therefore, that a strong concern should be organized at Kansas City to make and sell incubators. We are glad to call the attention of our readers to the Great Western Incubator, for it is a splendid hatcher, is not an experiment, but has had the most thorough and exacting tests so that the buyers are taking no risk whatever. We have investigated the machine and



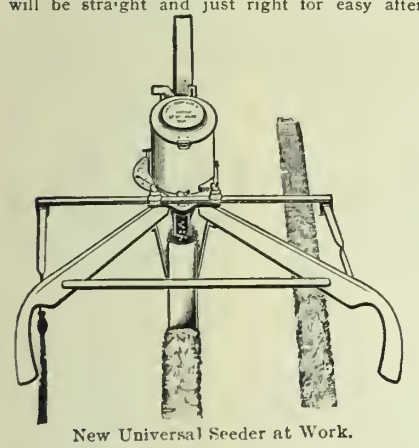
the people making it, and we can assure our subscribers that they are both deserving of confidence. Any claims made by the Great Western Incubator Co., can be depended upon. Their catalogue, which has a very striking and original cover, is devoted to a plain and straightforward statement of their machine and is singularly free from much of the extravagant language used by some catalogue "builders." Every point about the construction of the Great Western seems to be as good as could be. The best lumber is used, carefully worked, and well put together. The system of heating and ventilation is not only well nigh perfect, but the appliances themselves are made of the most durable materials, so that the whole machine is built for service and will last for years. The prices at which the Great Wstern are sold give the manufacturers a wide market and they are shipping them into every state and territory in the union and to some foreign countries. They are guaranteed absolutely. Write for one of the catalogues and read for yourself all about this splendid incubator.

Address Great Western Incubator Company, Kansas City, Mo., and mention this paper.

THE KITCHEN GARDEN.

Every farmer and villager who has a plot of ground at all suitable should have a kitchen garden, if for nothing else than to supply fresh vegetables for the table. Thousands appreciate the efficiency of the poultry yard as an adjunct to the home table as well as a money earner. The garden plot should go hand in hand with the poultry yard. There is no better garden fertilizer than that coming from the hen-house—but the garden itself, how may it be best attended?

Put in the seed with a drill and every row will be straight and just right for easy after



New Universal Seeder at Work.

cultivation with a wheel hoe. You should not be without these most useful tools even if you cultivate but one-eighth of an acre. With it you can do as much work in a given time as twelve men can do in the same time by older methods.

We are advertising in our columns the Mathews New Universal Hand Seeder and Cultivator, made by the Ames Plow Coo., of Boston, Mass. This implement with its various attachments combines in one the seeder, wheel-hoe, cultivator, rake, plow and marker. It is a wonderful labor saver and will pay bigger dividends on its cost than almost anything one could think of. These people also make separate implements for all gardening work on large acreage of onions, beets, spinach, etc. Send at once for their 1902 catalogue describing some twenty-five styles of these implements. Address Ames Plow Co., No. 59 Market St., Boston Mass.

The Fairbury Nursieries of Fairbury, Neb., who are among the valued users of our advertising columns this season call attention to the large quantity of standard fruits which can be bought from them for one dollar. This is elaborated in their catalogue, a copy of which has just reached us. The various kinds of fruit trees are listed with well and sensibly worded description matter and there is an entire absence of that extravagant language found in some nursery catalogues. Small fruits and flowering shrubs are in their proper place and priced most reasonably. Many farmers are planting forest trees every year and find it pays to do so both for shade and shelter and to create future fuel and timber supply. Th Fairbury Nurseries grow all the leading forest trees in great abundance and can furnish just what you want. Write for one of the catalogues today and mention this paper in writing them. A German catalogue is also issued. Unless specially called for the English one is sent. Address Fairbury Nurseries, Fairbury, Neb.

A PRIZE WINNER.

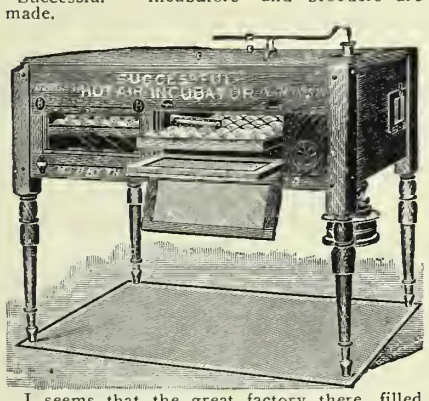
About a year ago the Jansen Nursery, now the Galbraith Nurseries of Fairbury, Neb., offered a prize of $25 worth of nursery stock for a new name. We are advised that the winner was Chas. J. Schlensig of Dunlap, Ia. He first suggested the "Galbraith Nurseries," which suggestion was adopted. This business was started at Jansen, Neb., but the establishing of a rural free delivery made Fairbury a more convenient point to work from, and the move resulted in a very much larger business the first year. We have just received a copy of the new catalogue issued by this company, and while it is not showy and pretentious as some, it is very complete and presents in a sincere and intelligent way the various varieties of fruits and trees. Mr. Galbraith writes us that he has a large line of two-year-old apple trees this year, which are remarkable vigorous and thrifty, and a very choice line of grapes. Foresty has always been a hobby with Mr. Galbraith. Ash, catalpa, maple, box elder and other native hard woods are all raised by the Galbraith Nurseries and sold at remarkably low prices. Write today for a catalogue and get your order in early. Please mention this paper when writing.

" ALL RIGHT" INCUBATORS.

We have received the catalogue of the Clay Phelps Incubator Co., Station 46, Cincinnati, Ohio, which we find to be one of the most interesting of this class of catalogues we have seen. This company not only gets up a good catalogue, but their incubators are guaranteed to be all that the name of the incubator would imply— "All Right." To show faith the company has in its goods, it offers to send out an incubator to all who wish to try it for 40 days, and in case the purchaser is not pleased with the machine, the company pays return charges and refunds every cent which may have been paid on the incubator. We can conceive of nothing more liberal than this, and recommend that our readers see the ad of this company and write for catalogue, mentioning the Western Fruit-Grower when you do so.

THE "SUCCESSFUL" ABROAD.

If any person has an idea that the incubator business of this country is sleeping, or is not sharing in the "expansion" of American trade of which we hear so much, it would be a good plan for him to drop into Des Moines and look into the factory of the Des Moines Incubator Company where the "Successful" incubators and brooders are made.



I seems that the great factory there, filled with busy workmen, ought to run out enough incubators to supply the world—and in fact, that's just what the Des Moines factory is doing. Europe, Asia, South Africa, South America and Australia are drawing upon the Des Moines Company for machines, and the most gratifying feature of the growth of this foreign business is the fact that it has not been brought about by excessive booming or extensive advertising by the company, but as a result ofo personal investigation of representatives of foreign firm, who have selected the "Successful" as the machine best suited for all climates and all conditions. The company has on file in its office an unusually fine lot of letters from foreign customers, of which this may be taken as a fair sample:

"Dear Sir:—The Des Moines hot water incubator purchased from your company during last season, gave the greatest satisfaction. I found it easy to manipulate, and although the printed instructions were often contrary to my ideas, I followed them out to the letter with highly satisfactory results. I consider the incubator one of the best on the market and would purchase no other. Yours faithtutiy,

WILLIAM CHADWICK.

Equitable Permanent Benefit Building, Land and Saving Instt., Sydney. Australia, June 6th, 1901.

Of course, this letter only confirms what thousands of Americans have already said, but it is gratifying to note that other lands appreciate a good thing as well as we do, and that a good, honest machine, huilt on the right plan, of first-class material, by careful workmen, and sold at a fair price, will win favor and popularity at home and abroad.

Write for their catalogue today. The English edition contains 156 pages, and is sent for only 1c postage. The German, Swedish, French and Spanish books are sent free. Address Des Moines Incubator Co., Des Moines, Iowa, or Buffalo, N. Y.

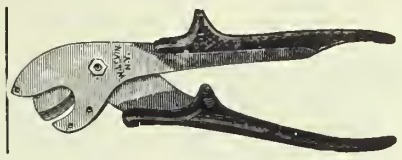
Quincy, Ill., is the home of many incuhator factories, but even the people of that city were excited recently over the shipment of 1,200 incubators at one time hy the Geo. Ertel Co. This shipment included machines for nearly every part of the globe, and speaks well of the wonderful popularity of the machines made by this company. The Geo. Ertel Co., has an ad in this issue, and will he pleased to send catalogue and price-list to all of our readers who ask for same, mentioning the Western Fruit-Grower.

NORTHERN GROWN FARM SEEDS.

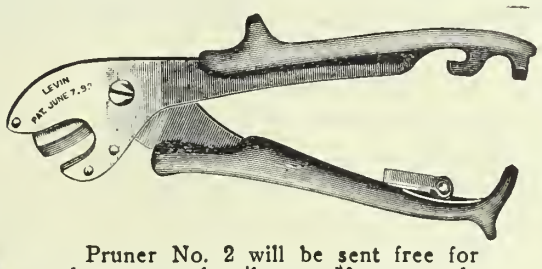
During the past ten years there has been an enormous demand for Michigan Grown Farm Seeds. The wonderful yields that have been secured from Hammond select varieties of seed potatoes, oats, corn, Japanese and other millets, barley, speltz, spring wheat, rape, spring rye, soja beans, bromus inermus grass and clover seeds are something phenomenal.

The Hammond Seed Co., Ltd., do an enormous business in seed potatoes, probably the largest growers and shippers in America. Their crop the past season aggregated 274 carloads which would make about eight good solid train loads. At an average planting of ten bushels per acre their seed will plant 13,510 acres. On farm seeds another large train would be required to haul the above named seeds, to say nothing of the tons and tons of vegetable seeds sold, such as onion, radish, lettuce, beet, mangel, peas, beans, sweet corn, carrot, cabhage,etc. It is simply marvelous the reputation this house has built up on the superior quality of its seeds. And they have sold at such low prices they have drawn an immense trade from all parts of the United States and Canada. Any one wanting seeds, either vegetable, field or flowers, should not fail to write to Harry N. Hammond Seed Co., Ltd., Bay City, Mich., for this handsome 100 page seed catalogue. It is mailed free for the asking, if you mention the Western Fruit-Grower.

Need Pruning Shears?



Pruner No. 1 will be sent for two new subscribers at 50 cents each, or will be sent postpaid for 75 cents cash.



Pruner No. 2 will be sent free for three new subscribers at 50 cents each, or will be sent postpaid for $1.00 cash.

From the present time until spring pruning shears will be in demand; grape vines, bush fruits, etc., must be cut back before buds open. Realizing that most of the readers of the Western Fruit-Grower will need a good pair of shears, we have arranged to furnish the celebrated Levin Pruner. This pruner is made in two sizes and is guaranteed by the manufacturers and by us. The two sizes are shown in the accompanying illustrations. No. 1 weighs 7½ ounces, and will cut a half inch stick of dry oak. No. 2 weighs 13 ounces and will cut a three-quarter inch stick of seasoned oak. The cut is made smooth and clean by both of these pruners, and they are remarkably strong for their weight—in fact, we know of commercial grape growers who use even the lighter size for pruning their vineyards, owing to the lightness of the tool and the effectiveness of its work.

The Western Fruit-Grower has a little folder, with list of horticultural and agricultural books which we offer as premiums. This booklet will be sent to all who request it, and you will be surprised to find what a good library you can build up, simply by getting a few new subscribers for us.

For the booklet or the pruning shears, address

Western Fruit-Grower
ST. JOSEPH, MO.

Japan Plums and Peaches

100,000 Red June, Abundance, Burbank, Chabot, Normand and Satsuma, $40, $50 and $60 per 1,000, boxing free. Also Elberta, Waddell and Carman Peaches PROPAGATED DIRECT FROM FRUITING TREES in our 2000 acre orchard, Fort Valley, Georgia.

Can ship any day all winter. Name special wants on above; also WRITE FOR FREE CATALOGUE, new peaches, plums, berries, big sweet chestnuts and general nursery stock.

J. H. Hale, South Glastonbury, Conn.

NOTES.

Texas railroads furnish men to help organize the truck growers along their lines into strong associations. They realize that in organization lies the hope of success of the growers—and of course it is to the interest of the roads that the growers succeed.

Apples are moving lively now, from Chicago storage houses. In January and February over 200,000 barrels went out, and there are fewer apples in storage now in Chicago than a year ago at this time, although there were 100,000 more in storage at first of season.

Here is something new: A Cleveland (O.) man offers to teach poultry raising by mail. We daresay a year's subscription to a good poultry paper will be as good as a course in this line. Some things can be taught by mail—but hardly poultry raising.

Don't plant too heavily of potatoes, unless you are in a section where you can get early ones on the market. The high prices received from last season's crop will induce a large planting. Maine planters are buying fertilizers in unusually large quantities, and this means a heavy planting of potatoes. With a good season the crop will be large and prices low.

Texas towns are going wild on the subject of canneries. Every town wants a cannery, and many are being erected. The danger is that the plants will be extravagantly run, and those who put their money into them will lose it. The Lone Star State offers exceptional advantages for canneries, but it has been the experience of other sections that the first ones which are put in seldom are run at a profit. We hope our friends down there will avoid the mistakes which have been made elsewhere.

A letter from John Morris, Golden, Colo., tells of the failure of the Domoestica, or European, plums in that section. He believes a man is throwing his money away when he plants them for commercial purposes. In ten years trees have had about one crop and a half. They winter kill, and are in every way undesirable. Native plums do all right, and Mr. Morris recommends planting them. Cherries are profitable there, and English Morello and Montmorency are the best, Early Richmond and May Duke not being sure croppers. Mr. Morris says the man who is in the business for the dollars should leave European plums severely alone in Colorado, and he might also have added all the section in the Middle West. The American sorts are all right, but the Domestica type are a losing proposition.

A large Western orchardist who has no bees of his own experimented last year by placing a few borrowed colonies in his orchard. He was so well pleased with results that this season he has perfected an arrangement with a large beekeeper whereby all the bees belonging to the latter will be transferred to the orchard. The orchardist will furnish land for the bees for the good they can do.

The annual report of the horticulturist of the Tennessee experiment station has some interesting notes on varities of strawberries. Soil is a sandy clay loam, newly cleared of mixed forest. In yield, quality and lateness the leaders are as follows: Heaviest yield—Pride of Cumberland, Clyde, Tennessee Prolific, Stone's 130, Sample, Gibson, W. J. Bryan, Glen Mary, Greenville, Splendid. Best quality—Bennett, Parson's Beauty, Brownie, Downing's Bride, Margaret, Senator Dunlap, Pride of Cumberland, Tennessee Prolific, Clyde, Nick Ohmer. Latest berries—Gandy (latest), Hunn, Michigan, Sampson, McKinley, Downing's Bride. An experiment in the use of commercial fertilizers for strawberries has been begun. The plants being set in September, a full crop can not be had until the season of 1903.

G. G. Hitchings of Onondaga County, N. Y., whose orchard was referred to in Major Holsinger's department recently, sprays as many as six times in one season, and makes the work pay.

University Apple

The best and hardiest tree for the Northwest. Tree perfectly hardy, does not blight, keeps all winter. Fruit large and best in quality.

Compas Cherry

The largest and best cherry for the Northwest. Absolutely hardy, bears fruit next year after planting. Send for free Catalogue.

Minnetonka Nursery Co., Excelsior, Minn.

A Banner Offer

Three Magazines for $2.00

We will send the

Western Fruit-Grower, 3 years	$1.50
Leslie's Monthly, 14 mos	1.40
Vick's Magazine, 1 yr	.50
Handsome calendar, 1902	.50
Total	$3.90

All for $2.00-Almost $2 for $1

WESTERN FRUIT-GROWER
St. Joseph, Mo.

Black Ben Davis "King of the Orchard"

Entirely Different from Gano

Major Frank Holsinger writes us under date of Dec. 30, 1901: "I promised you yesterday to do you justice in the matter of **Black Ben** vs. **Gano.** As I told you, at first I thought them identical, but in a latter examination concluded differently. . . . . I feel positive now, with what evidence I have, that they are different. . . . "—Frank Holsinger.

If others who have been spreading the report that Black Ben Davis and Gano are the same, were as careful to **investigate** and as **honest to admit** their mistake as Maj. Holsinger many planters would be saved the disappointment of planting Gano with the idea of getting the same or as good an apple as Black Ben Davis. Gano is a good apple, but **Black Ben Davis is SUPERIOR in size, color and keeping qualities.**

Champion: Next to Black Ben Davis, the **most valuable** of all market apples—good grower, **young bearer,** good color—much better keeper than Ben Davis, and a **great drouth resister,** having stood last summer better than any other sort. **Delicious, Senator, Apple of Commerce, Jonathan** and **Grimes Golden** complete the list of **MARKET and QUALITY KINGS.** Our stock of 1 and 2-year old apple trees is the largest in the U. S., and **quality is unsurpassed.**

PEAR, Standard: Leading sorts, in-cluding Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others—**extra fine trees.**

PLUM: A full stock of all the BEST varieties, including Burbank's Climax, Sultan, Shiro, America. Gold is still **increasing** in popularity—we have most excellent reports from all over the U. S.; should be in **every** orchard.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, E'y Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce for spring; orders should be placed at once.

ELBERTA PEACH

We still have a fair supply of this most valuable of **all** peaches. Our stock of Elberta alone was more than 2,000,000 trees and by turning down orders from other nurseries we maintained our supply for planters' trade. We must admit that we have no surplus, and those who wish to plant the coming spring must place their orders early or be disappointed. The stock is strictly first-class in every particular.

PEACH, of all varieties, very **scarce** thruout the U. S., and nurserymen who have sold their small stocks and are unable to procure more, are advising planters to wait until next year. But we have a stock in keeping with Elberta and are **still prepared to supply planters** with all the standard varieties, notwithstanding the enormous trade of last fall from the Southern States. No need of waiting until next year to plant peach orchards—a year's time lost is never regained.

APRICOT: Sunrise and Superb, the only two varieties worth planting east of the Rocky Mountains. Also American Seedlings, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading sorts for home use and market—London Market Currant, Houghton Gooseberry and Cumberland Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

BUDDED LILACS: Superb Sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every door yard, should have them. **Perfectly hardy.**

ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

GRAPE---An Immense Stock of Superb Quality

For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines; for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivition, we are able to reduce prices materially.

FIELD OF NIAGARA STARK BRO'S GRAPE NURSERIES in the famous Fredonia Grape District, Chautauqua Co., N. Y.

We are ready to meet all competition in both quality of stock and **low prices.** Large orders for vines of nearly all varieties grown by us can be shipped from either Portland, N. Y., or Louisiana, Mo.; small assorted orders will be filled from Louisiana, but with the fine N. Y. grown vines—we having discontinued growing grape elsewhere. Leading varieties are Moore's Early, Diamond, Niagara, Worden, Concord, Brighton, Delaware, etc., all sorts of **established** value in all markets. For the home vineyard we grow the sorts of finest quality; in fact, our list embraces **the best** for all purposes, covering the entire season from early to late.

We PAY FREIGHT on Orders of $12 and Over, Box and Pack Free, Guarantee Safe Arrival, GUARANTEE SATISFACTION. Write for Stark Fruit Book, Price List, etc.—free upon request.

STARK BRO'S NURSERIES & ORCHARDS CO Louisiana, Missouri.

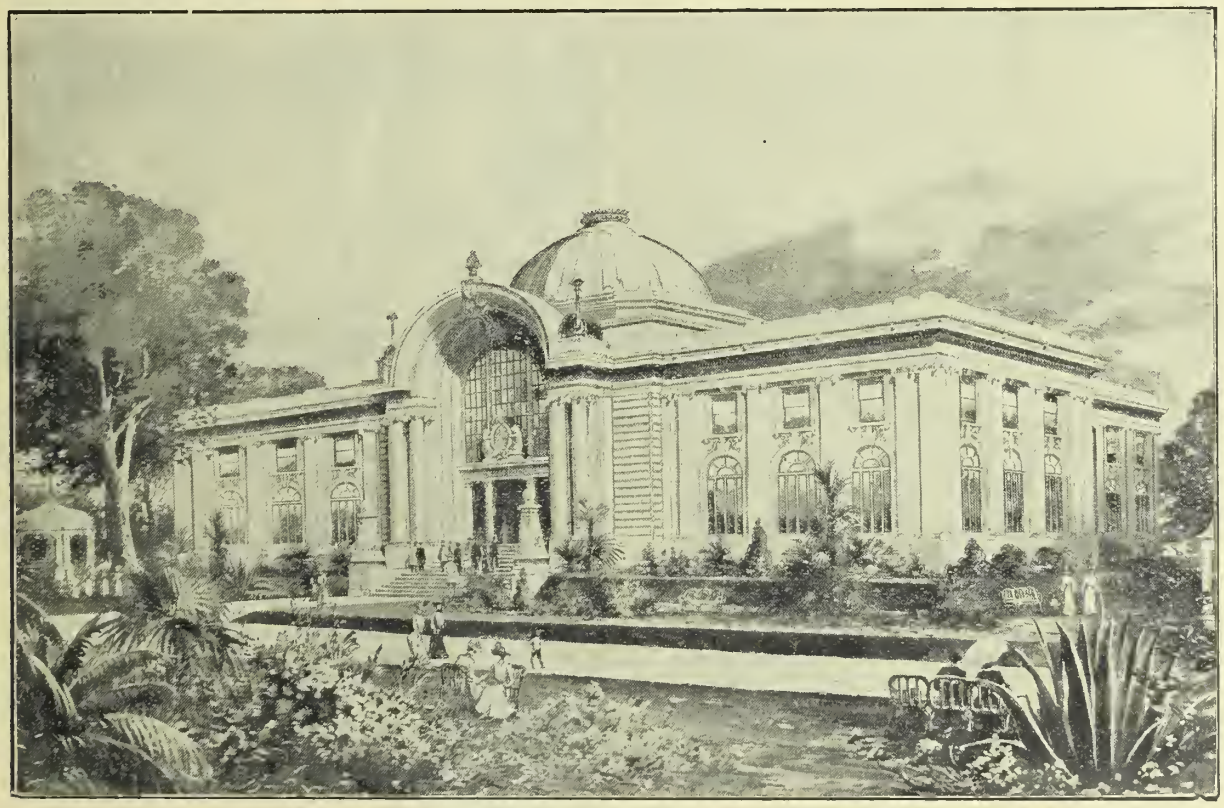
Volume Eleven APRIL 1902 Number Four

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS.

ST. JOSEPH, MO.

Hortic. Dept. Univ. Ill.



The Missouri State Building at the Louisiana Purchase Exposition

The Missouri Building at the World's Fair at St. Louis, of which a reproduction in perspective is herewith supplied, is an exhibit in itself of the bulding resources of Missouri. It is the main building in the group of buildings to be erected by the Missouri World's Fair Commission on the grounds of the Louisiana Purchase Exposition, in Forest Park.

The site of the building was recommended by the Missouri World's Fair Commission after a careful survey of the ground. Ready accessibility and prominence among the buildings that surround it are both admirably subserved by the location. The building will be erected on the high ground south of the big main picture of the Fair. The building nearest to it will be the United States Government Building.

The Missouri Building will face the north, looking directly toward what will be the main entrance of the exposition. The style of architecture of the building is a free treatment of the French Renaissance, which is the characteristic style selected for the Exposition. It is in the shape of a long parallelogram with a center wing extending to the rear. It will be two stories in height and will have a basement story also. The center is a symmetrical square design with the two side and rear wings joining same.

The two side wings of the three which branch from the main rotunda, will have a center corridor the full length of the wing with rooms on either side—large and spacious and capable of being used either as reception or exhibit rooms. The present intention is to divide the space into compartments for use during the fair. Afterward it can be thrown into one compartment to serve such uses as the building will be put to after the fair. The height of the stories allow rooms to be thoroughly lighted and ventilated, and gives them a monumental appearance.

A great dome crowns the center and the second story is formed into a balcony opening the view from the level of the first story floor to the ceiling of the dome. The visitor entering the building will be struck at once with the size of the rotunda and the wide sweep of the dome.

Sixteen columns will carry the balcony of the second floor and, following the plan of the dome, will carry the perspective from the floor line to the vault of the dome.

The ceiling of the great dome and the walls of the corridor will supply work

for the mural painter in the representation of incidents in the history of Missouri and in genre representation of incidents of the life and work of its citizens. These genre paintings will represent life and action of the present day in Missouri, and will in a short time to come be of great historical interest. It is the intention to have these paintings represent a court scene; a marriage scene, civil or church; a baptism scene, and other everyday events of the present time.

Large, wide, easy flights of stairs lead to the second story. The sides of the main entrance are decorated with massive stone columns and the entablature, broken into the shape of an arch, makes the front light in construction and graceful appearance. This form also guarantees light and ventilation in the main rotunda at all times. A magnificent carving in stone of the coat of arms of the State of Missouri will hold a place here, over the main entrance of the building. This will stamp it through coming years as one of the possessions of the state, no matter to what use it is turned after the exposition.

In the rear wing is a large assembly hall on the level with the first story floor. This hall is 25 feet high in the clear, capable of seating 1,000 persons. At the sides are retiring rooms. The hall is designed not only for speech making, but also for such balls and entertainments as the Missouri Commission may give during the Exposition. A large gallery across the hall at the northern end. Under the hall, in the basement, are toilet and storage rooms. This compartment also contains the heating and ventilating apparatus. Above the hall are two large rooms which can be used advantageously for exhibit purposes. Two flights of iron stairs lead from the basement to the second story. These are placed back of the rotunda and afford easy access to all parts of the building.

None but Missouri material will be used in the building. The Commission is satisfied that Missouri can supply everything needed for the erection and equipment of even so elaborate a structure as this. The basement of the building is to be of Missouri granite. Above this, to the top of the ballustrade course, the material will be of cut stone. The kind to be used has not yet been determined and it is hoped that friendly rivalry will arise among producers of building stone in Missouri to obtain the use of their material for the structure. This will not only produce an attractive display, but should greatly lessen the cost of the structure and be of great advantage to the producer fortunate enough to supply the material.

The exterior of the dome will be covered with Missouri lead or zinc. The rotunda is to be finished in the marble and onyx so abundant in Missouri. The most delicate materials can be used in this position as there will be perfect protection from the weather. There will be no plastering in the rotunda. Walls, columns and dome will show the original materials in their most highly finished condition. The purpose is to get a perfectly harmonious effect of color and texture, but at the same time give all the vast building resources of Missouri a show place in this structure for all time to come.

In the finish of the interior, the beautiful woods produced by Missouri will be exclusively used. The wood will be finished and polished, but in natural color. Oak, walnut, elm, sweet gum, yellow pine, maple, ash and many others will be used. The chandeliers will be of Missouri iron. The floor of the rotunda of Missouri marble.

The building will be fireproof throughout, and from foundation to dome will be a credit to the state, and what is intended to be—an exhibit within itself of the building material resources of the state.

SELECTION OF PROPAGATING TREES.

There are two sides to every question, and lest it be assumed there are none who differ from the views expressed by Major Holsinger in the January number, we present the following from an article by J. B. Baker in Farm and Ranch. After speaking of the efforts made by live stock breeders to improve varieties, Mr. Baker says:

"Seedmen and truck growers are quicker to recognize the principle of selecting seeds from carefully selected specimens, which have been well grown, than are nurserymen or fruit growers. Not many years back with most people a cabbage was a cabbage and a peach was a peach. Now the average man knows something of varieties, and calls for early Jersey Wakefield or Early Flat Dutch cabbage and Alexander or Elberta peaches. But the expert market gardener goes still further. He is not willing to buy merely Early Jersey Wakefield, or Late Flat Dutch cabbage, but he wants to know where the seed were grown and by whom. He knows that some strains of well-grown Wakefield ill produce 95 per cent of good heads; other strains, though they may be genuine Early Jersey Wakefields, will produce only 75 or 50 per cent of marketable heads. This is due to careful or careless growing.

"But can we say as much for the nurseryman and fruit grower? It is true we have gotten beyond the point where a peach is a peach and an apple an apple. But have we gone beyond the point where an Alexander is an Alexander, and an Elberta is an Elberta? The gardener will pay $3 a pound for a Wakefield cabbage seed, while he could buy another strain for 75c a pound. But all that the fruit grower asks the nurseryman is whether it is an Alexander or an Elberta and the price. It is true the improvement or deterioration of varieties in trees is a much slower process than in vegetables or animals, because the generations are of a greater time; but the principle is the same.

"This whole process of improvement is based on the fact that no two things in nature are alike. Hence one is better or bigger than the other. Use the better or bigger and discard the other. No two Elberta peaches on the same tree are alike—one is better than the other; one is better than all the others. It is clearly then our duty to propagate from only the best trees. If nurserymen were to practice this in all their propagating there would be no deterioration, but improvement.

"If I had time I could prove these statements by illustrations. I will give but one: When Peter Henderson introduced the Sunset Rose it was a strong grower and produced blooms of fine substance and deep rich color; but continual forcing and propagation in a few years spoiled its constitution, substance and color. European growers are more careful. They produced stock of the Sunset, propagated and grew it with care; so that Peter Henderson had to send to Europe to obtained healthy stock of his own introduction.

"By care we can greatly improve existing varieties; by neglect we shall lose what we have gained. A weed was taken and so improved that it produced the luscious tomato of today. Another weed was taken and produced the gorgeous chrysanthemum of today. If these are cultivated with care, they will be still further improved; if neglected they will go back to weeds in a very few generations.'

"Some weeks ago I wrote you for a sample copy of the Western Fruit-Grower, and for 10 cents I received the three best papers of the kind I ever saw. The Western Fruit-Grower is just th paper I have been hunting for, but had previously failed to find. I would not give one copy of it for year's subscription to any other paper I have seen up to this time. It comes right down to practical business on the very subjects fruit-growers are interested in, and at the right time, too.'—S. S. Maxwell, Hanna City, Ill.

Let Me Tell You

HOW TO GET WELL

Send no money; simply state the book you want. It will tell you what I spent a lifetime in learning.

With the book I will send an order on your druggist for six bottles of Dr. Shoop's Restorative, and he will let you test it a month. If satisfied, the cost is $5.50. If it fails, I will pay your druggist myself.

I will do just as I say. Over half a million people have secured my treatment in that way, and 39 out of each 40 have paid for it because they were cured. Not a penny is accepted if it fails.

There are 39 chances in 40 that I can cure you. No matter how difficult your case, I take the entire risk, for those half million cases have proved what my remedy can do.

My way is to strengthen the inside nerves. I bring back the nerve power which alone makes each vital organ do its duty. No other remedy does that; and in most chronic diseases there is no other way to get well. Don't let doubt or prejudice keep you from asking about it.

Simply state which book you want and address Dr. Shoop, Box 436, Racine, Wis.

Book No. 1 on Dyspepsia.
Book No. 2 on the Heart.
Book No. 3 on the Kidneys.
Book No. 4 for Women.
Book No. 5 for Men (sealed).
Book No. 6 on Rheumatism.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

RIPPLEY'S

Whitewashing, Spraying and Painting Machine.

GUARANTEED to be AS REPRESENTED

Read Our 30 Days Special Offer Below.

This Machine will Whitewash Buildings, Walls, Barns, Poultry Houses, doing it far better, saving ¾ the time over the old method of using brush. Will Whitewash Buildings, or Spray Trees any height by using extra hose and extension rod to elevate Spray. Endorsed and used by hundreds of noted Breeders. It is used and endorsed by Sid Conger, Shelbyville, Ind.; U. R. Fishel, Hope, Ind.; Meadowbrook Poultry Farm, Dallas, Pa.; G. W. Brown, Camden, Ark.; A. G. Duston, Marlboro, Mass.; Texas State Fair Ass'n, Dallas, Texas. **W. B. Dean, Secretary of State Board of Agriculture, Yankton, S. Dak., says:** "We gave all State Fair Buildings two coats with your machine. It is a complete success and a great labor saver." In order to get them introduced in every locality, we will allow freight to your station, for the

NEXT SIXTY DAYS ONLY,

at the following net cash prices: No. 6.—Eight Gallon Heavy Galvanized Steel, complete as shown in cut with 10 feet of ½ inch hose and one 8-foot bamboo extension rod and brass cylinder pump with agitator, **$12 00.** No. 7.—Sixteen Gallon size, **$15.00.** Terms cash with order, or we will ship C. O. D., if $3.00 accompanies order. Take advantage of our **Special Offer.**

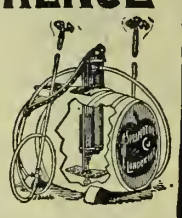
Send for a copy of our 1902 Sprayer and Breeders' Supply Catalog.

Rippley Hardware Co., Box 217 Grafton, Ills.

Western Office, Box 217, Watertown, So. Dak.

THERE IS A DIFFERENCE

between the fruit sprayed with a common spray pump and one that is not. There is a still greater profit from fruit sprayed with the SPRAMOTOR. Why is it the entomologists get such bounteous returns while the average grower fails? Why do these experts who have used the **Spramotor** recommend it? Why does the **Spramotor** kill the San Jose Scale and let the tree live, while the ordinary spray pump kills the tree?



The SPRAMOTOR

will apply scap and oil, or bordeaux and oil and water, or any combination of them in the right proportion. The **Spramotor** will paint your barns and buildings with oil or **Spramotor Water Paint**. The **Spramotor** was winner of the Canadian Government Spraying Contest, and the Gold Medal at the Pan-American Exhibition. Send for 80 page Copyrighted Treatise, "A Gold Mine on Your Farm." It tells about the diseases of fruit trees and their remedies. It's free.

THE SPRAMOTOR

SPRAMOTOR CO.,

Buffalo, N. Y. **London, Can.**

For Wholesale Spraying

in large commercial orchards where the saving of time, labor and material is a necessity, to say nothing of having the spraying done in the right "nick of time" nothing equals

Send for free catalog and opinions of people who used it last year.

This Orchard Monarch

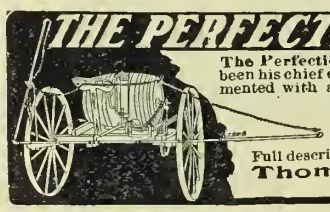
—note the large **storage chamber** in front. A convenient pump operated by chain sprocket from rear wheel raises air pressure to 150 lbs. With 12 gallons of liquid in chamber this will work two Vermoral Nozzles at full capacity long enough to spray the largest tree. Automatic agitators keep liquid thoroughly stirred up. Brushes clean suction strainers automatically every instant. No burning or scalding of foliage. Sold complete as shown in cut. We make the

Famous Empire King Barrel Sprayer

and full line of smaller machines.

FIELD FORCE PUMP CO., 35 Market St., **Lockport, N. Y.**

THE PERFECTION SIX ROW SPRAYER



The Perfection Sprayer is not the product of a theorist. Making sprayers has been his chief employment for the last twelve years. He has examined and experimented with and made more large capacity, power sprayers than any other man in the U. S. The **Perfection Six Row** is his final triumph. Sprays six rows of potatoes or vines at one time. Can be used either by hand or horse power. Easily adjusted for vegetables, shrubs or trees. Sprays Bordeaux and all other mixtures without trouble or waste.

Full descriptive catalogue sent free. Ask for it.

Thomas Peppler, Box 48, Hightstown, N. J.

Also manufacturer the Improved Ring's Plows and Furrowers

ACME Pulverizing Harrow

Clod Crusher and Leveler

SENT ON TRIAL

To be returned at my expense if not satisfactory.

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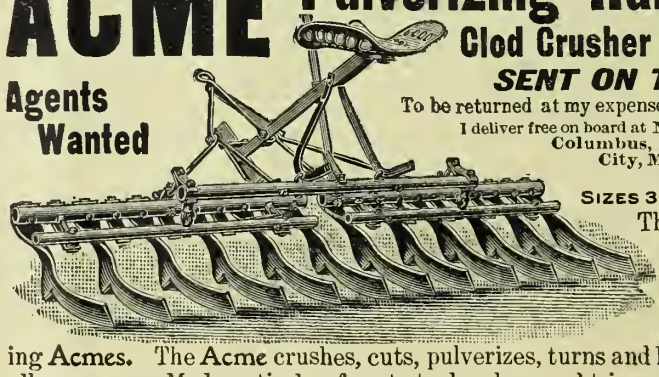

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Fertility for Fruit Farmers

Professor Jordan Talks on a Very Interesting and Important Subject ✓ Water Is Fertilizer

AT the last meeting of the Western New York Horticultural Society, Dr. W. H. Jordan, director of the Geneva (N. Y.) Experiment Station, read a most excellent paper on the subject of "Fertility for Fruit Grower." This subject is of much interest to our readers at this time in that it deals with the question of water supply—for the gentleman calls particular attention that the supply of water is a very important factor in the food supply of plants; that, in short, water is fertilizer. We publish in full Mr. Jordan's excellent paper, and also the discussion which followed same. After last season's experience the Western farmer is much interested in anything which will help him conserve his supply of moisture, and we commend the following paper to all:

Fertility Defined—A fertile soil is one that produces abundantly, one that is fruitful. In these later days so much has been said about the elements of plant food and the quantities of these which are needed for the production of a crop, so much attention has been paid to commercial fertilizers and the manurial values of the residues of cattle foods, that we have come to discuss fertility as largely a question of chemical bookkeeping with our soils. We have to some extent lost from view other factors which are extremely important in their relation to the fruitfulness of the soil. Fertility is an exceedingly complex matter. If a grape grower is to succeed in producing fine fruit he may have abundance of manures, he may cultivate and prune his vines after the most approved methods, but unless he is in possession of a soil whose temperature can be maintained up to a point that is congenial to the vine he will fail of the highest success. A small fruit grower may have in possession a soil which is all that is to be desired as to warmth, he may make liberal applications of commercial fertilizers and of farm manures, but unless he can succeed in securing the proper texture of the soil in which the roots of the plants are to develop, he will be handicapped in his work. In all this I mean to say that fertility is more than the mere matter of supplying plant food. One of these conditions is that the roots of the plants shall have a congenial home, and this congeniality includes both temperature of the soil and texture. It is surprising, as some of us who are experimenting have observed, how small an amount of plant food is necessary for the rapid and generous development of a plant—provided the conditions of growth are of the best possible character.

Water as Plant Food—Notwithstanding the influence of other factors, the food supply of plants is very important. We are accustomed, when we mention the food supply of a plant, to think of nitrogen, phosphoric acid, potash, lime, magnesia, and so on. It is seldom that we think of water in this connection, notwithstanding its essentialness to the life of the plant and the large amount which vegetation uses.

The importance of water in vegetable life is seen when we consider its functions. It acts as a carrier by means of which plant food finds its way into the plant; it is essential to the transference of the materials of another; it is necessary to the growth from one part of the plant to maintenance of the proper firmness or rigidity of the plant tissues, and it is used as building material during the time of growth. Common observation teaches us that when the water supply of a plant is deficient in quantity or is cut off entirely, the plant is checked in its growth or dies. Few of us are aware, I suspect, of the large quantity of water which is used by plants during the process of development or during the vegetation season. The figures which have been secured through investigation are almost startling. Authorities state that on bright summer days it is not unusual for two to twenty pounds of water to be evaporated from a square foot of leaf surface. According to one scientist, the amount of water evaporated from an acre of trees from 160 to 240 in number, is during six months from 2,100,000 pounds to 3,000,000 pounds. Experimental data justifies the statement that one acre of oats transpires during the growing season not far from 2,000,000 pounds of water and an acre of barley over 1,000,000 pounds. Another investigation concludes that the amount of water passing off from the leaves of a single maize plant during its period of growth is thirty pounds. from a hemp plant sixty pounds, and from a sunflower plant sixty pounds. These figures are given not for the sake of presenting startling statements, but in order to make evident the great demand which plants make during the growing season upon the store of water which is available for their use.

The Source of Water Supply—Practically the only source of water supply for vegetation is that which reaches the soil from rainfall. Much has been said concerning the absorption of moisture from the air by soils, but the data so far accumulated do not justify the statement that this source of supply is important. During eighteen years in which complete records have been made of the precipitation, including rain and snow, at Geneva, N. Y., the annual precipitation has ranged between 19.3 inches of water and 36.9. This is equal to from 4,258,000 to 7,983,000 pounds, or from 2,129 to 3,990 tons of water per acre. These figures are given in order that you may see their relation to the amount of water which subsequent figures will show to be necessary for the production of a crop.

Disposal of the Water Supply—This precipitated water is disposed of in three ways. If the rainfall is heavy a certain proportion of it percolates through the soil, enters the drain pipes and passes off in the streams which are constantly flowing toward the sea. Another part of the water is returned to the air from which it came by evaporation from the surface of the soil, an amount varying greatly, according to the conditions which prevail. Another portion is taken up by the plants which are growing on the soil, is transferred to the leaves, and from them is evaporated into the air.

Observations made at Geneva in 1899 showed a rainfall during the entire season of 32.9 inches and 17.7 inches during the growing season. The drainage from three soils was tested, that covered with turf, bare soil uncultivated, and bare soil cultivated. The percentage of drainage was as follows:

Whole season: Turf, 37.6 per cent; bare soil uncultivated, 41.5 per cent; bare soil cultivated, 43.8 per cent.

Growing season: Turf, 13.7 per cent; bare soil uncultivated, 28.4 per cent; bare soil cultivated, 33.2 per cent.

That which did not pass off as drainage was either held in the soil or evaporated.

If it were to differentiate the rainfall into useful and the non-useful as related to the growth of plants, it is proper to state that only the water which is retained in the soil and which is not lost by drainage, has any possibility of usefulness to the plant. The available supply of water is that which is stored in the soil.

The Storage of Water in the Soil—If we could examine any soil with sufficient minuteness and to a sufficient depth, we would find that under ordinary conditions, proceeding downward from the surface, the larger soil spaces are not filled with water. At a certain depth, varying greatly with the character of the soil, the season of the year and the amount of previous rainfall, we should reach a point where all the soil spaces are filled with water. We speak of this point as the water table. Below it there are no air spaces, no aeration; above it there are spaces not filled with water and through which the air may pass. The soil above the water table contains much moisture, however. Surrounding every minute particle of which the soil is made is found a film of water, held to the particle by an attraction which is well understood by the physicist. We would find, also, that where these fine particles approach with sufficient nearness a space between the two is filled with water, these spaces constituting something comparable to capillary tubes. Without giving the matter any thought, most people would be inclined to say that the water holding power, or, in other words, the storage capacity of a sandy soil or any soil made up of coarse particles, is greater than the storage capacity of a clayey soil, or one made up of fine particles. As a matter of fact, the reverse is true. This storage capacity is dependent upon the extent of the surface of the fine particles making up a unit volume of soil and upon the volume of the spaces capable of holding water by capillary attraction. It is capable of demonstration from this standpoint that the area of attracting surface and the capillary storage spaces of the fine soil are both much greater than in the soil made up of coarse particles.

Whitney tells us that in general 50 per cent of the volume of a perfectly dry soil consists of empty space. In a sandy soil he found this space to be 41.8 per cent of the whole volume and in a pipe clay 65.1 per cent. This investigator went further and determined the number of particles in one gram (1-28 oz.) of soil. For pine barrens soil he gives the number as 1,692,000,000 and for a fine limestone soil 24,693,000,000. The square feet of area of the surfaces of the particles in a cubic foot of the pine barrens soil this author calculates to be 23,940 and 158,000 for the limestone soil (3.7 acres.)

It is easy to understand why actual tests of the storage capacity of various classes of soils when brought to a condition of saturation show wide differences. We may accept it as a well proven fact that our clay loams and similar soils store for use during the growing season a great deal more water than is retained by sandy loams and in soils of a coarser nature. This is an exceedingly important matter, because, as we know, without adducing scientific evidence, the water supply during many seasons is sadly deficient.

Loss of the Available Water Supply—At the beginning of the growing season each soil has stored within the reach of the roots of crops a certain amount of water which, in connection with the rainfall during the spring and summer months, constitutes the available supply, provided the rainfall is not so excessive that there is percolation from which the plants may draw during their period of growth. Because of the fact that during many seasons the water supply is greatly insufficient and as a lack of water for crops probably occasions a greater loss to the farmers of this country than a lack of any other elements of fertility, it is important to know the extent of the supply which is necessary in order to produce the best results, the ways in which soil water may be lost from use, and the means and methods which may be used for conserving this important factor of fertility. The only way in which the stored water is lost from the soil without its being of direct benefit to the plant other than aiding in concentrating plant food in the upper layers of the soil, is by evaporation. Ordinary observation teaches us little concerning the extent of this evaporation. Exact measurements show, however, that the daily loss from this cause may be as high as from 1.3 to 1.6 pounds of water per square foot of surface. King states that he has observed an average loss of water amounting to .67 pounds per square foot of surface during a period of sixty-four summer days, which is equivalent to 8.24 inches of water. More important still are the conditions which increase or diminish this loss. If any of you have ever taken the trouble to stand, in a dish of water, glass rods having both ends open, you will notice that unless the diameter of these tubes is too great, the water stands higher on the inside of the tubes than at the outside. The smaller the diameter of the tube the higher will the water stand. If the aperture in the tube be no larger than a hair the water will rise to quite a distance in the tube. If the aperture be the size of a lead pencil, the rise of the water on the inside will be very little above the general level. The same general facts apply to soils. If the spaces above the water table, which I have described, are in part very fine, water will not only rise higher in these air spaces, but will rise to the surface of the soil with much greater rapidity. Now, as no water can be evaporated from the soil that does not find its way to the layers which are in contact with the air, so in a general way the faster the water can be pumped to the surface the faster will it be evaporated. I have said all this in order to make it clear that the evaporation from your fine soils, such as clay loam, is much more rapid than the evaporation from coarse soils like those of a sandy or gravelly character. We have, then, the two facts. Clay soils will store more water than sandy soils and under certain conditions are capable of evaporating more water. This makes it seem that the latter fact offsets the former so far as any advantage which the clay soils may have. Under proper management this is not true. The phenomena which we may observe when we stand the glass tubes in a dish of water convey an important suggestion to us, if we are looking for means whereby to prevent this rapid evaporation from the surface of the soil. Let us suppose that we have a glass tube with an internal diameter so fine that water would rise by capillary action one inch above the surface of the water in the dish; now let us make a considerable enlargement in the bore of the glass tube at one-half inch above the surface of the water in the dish and then contract the bore to the size of the aperture of the tube below this enlargement. Under these conditions we would find that the water would not rise to the height of one inch in the tube. It would rise to the point of enlargement and there stop. The lesson in this is that if at some point we can destroy the continuity of the fine tubes in the soil we shall retard or entirely stop the rise of water in the soil by capillary action. You see the application without my suggesting it even. The most effective and practicable way to prevent a loss of the storage of water in a clay soil, or in any other soil, in fact, is to pulverize and stir up the upper layer by some means or other so as to render the soil spaces greatly larger and thus lessen the vigorous pumping process which would go on if the soil were allowed to remain in a compact condition with continuous fine capillary spaces. This may seem to you to be a matter of theory. The statements I make have been demonstrated to be true by experimental work. If you were to take a series of boxes and pack them full of fine moist earth, leaving the soil of some of them in an entirely compact condition to the very surface and in others stirring the soil into a loose condition to the depth of one inch, you would find by weighing the boxes at regular intervals, as other experimenters have done, that the loss of weight from those in which the soil was left entirely compact would be much more rapid than the loss of weight from those boxes in which the upper strata of the soil was stirred. This stirring of the upper layer of the soil is one way of mulching. It is an earth mulch. The same results may be accomplished by strewing loose material over the surface of the soil and thus preventing the pumping of the water to the point where the warmth of the sun and the evaporating power of currents of air can transform the liquid water into vapor. These general facts we shall apply to practice a little later on.

The Necessary Supply of Water to

Plants—Much study has been given to the question of the quantity of water which is necessary to maintain satisfactory growth of the various farm crops. We have seen what large amounts may transpire through the plant during the season and have noted the extent to which evaporation may take place from the surface of the soil. During the time the plant is growing, water is being taken out of the soil by both of these means. Many observations have been made as to the extent of the loss in these two directions. American observations indicate that from 234 to 522 tons of water are utilized in these two ways for each ton of dry substance produced by the crop. This is equivalent to from 2.14 inches to 4.76 inches of water for each ton of dry matter grown. As the various crops produce from two to five tons of dry matter per acre per year, we see that the possible demands upon the water supply for the proper maintenance of a growing crop may vary from eight to over twenty inches of water per season, or 900 to 2,260 tons per acre. Foreign observations substantiate those of American experimenters.

The Necessary Storage of Water in the Soil—In considering the amount of water which a soil should contain at the beginning of the growing season and which should reach it by precipitation during the spring and summer months, we should keep in mind certain related facts. It must be recognized, in the first place, that a plant cannot use all the water stored in a soil. King, of Wisconsin, states that in the clay soil of his state plants are not able to use the water below 6 per cent and in sandy soils not below 6 per cent. If, therefore, the upper five feet of a soil contained the generous amount of 2,400 tons per acre, or somewhere about twenty-one inches, only about 1,468 tons would be available to the plants, provided no evaporation and no percolation were to occur. The loss of water by evaporation is certain and by percolation probable, so that the available supply of water is reduced below the figures given.

We must remember, in the second place, that if a plant is to grow under the most favorable conditions, the water in the soil should not be reduced below 50 or 60 per cent of the point of saturation. While vegetation may use water below this point, the limitations of the supply place serious limitations upon the thriftiness of the plant. The plant, therefore, not only must use the large amount of water for growth, as we have seen from previous statements, but for its best welfare, the moisture of the soil should be kept up to a generous percentage. It is probable that if a clay soil starts in the spring at the point of saturation and if the rainfall during the growing season which actually percolates into the soil to the area where it may be utilized by the roots of growing plants, is from twelve to fifteen inches, I think satisfactory crops may be produced. It is seldom, however, that these conditions prevail. It is not always that a soil becomes saturated in the spring of the year, especially when a severe drought has prevailed the preceding season and the fall and winter precipitation has been small. Moreover, the rainfall which actually becom available is often greatly less tl twelve inches. For instance, in 1 year 1900 only 11.4 inches of rain f at Geneva during the four months May, June, July and August. Six a one-half inches of this fell in Ju While the number of precipitatic during these four months was lar the quantity of rain which fell at a one time was in a majority of stances so small that little or no go was accomplished. Not enough wa fell to percolate to the point where could be used by the roots of plan and in one sense these small prec itations may be said to have do harm because of compacting a moistening the extreme upper lay of the soil and increasing capillar and thus causing greater evaporati As we all know, the season of 19 was not a productive year because the lack of water, some crops in sor localities being almost an entire fa ure.

We need to consider, therefor whether there are any means methods by which the supply of wa ter, whether that stored in the soil o that which is precipitated during th growing season, may be conserved fo the use of plants.

The Conservation of Soil Moisture—Tillage—In considering the means by which we may economize the water designed for the use of plants, it should be said that there are a few rules of universal application. All that can be done in this connection is to present a few of the more important operations or conditions which tend to increase the storage of water in the soil and to prevent the evaporation of that which becomes stored. If there is any universal remedy for a deficiency of soil water it may be expressed in the one word tillage. If it is desired to use a word of more general significance, we may substitute for tillage the word mulching because tillage, properly regarded in this connection, is simply providing an earth mulch. The principle which operates in preventing evaporation of water from soil by tillage has already been explained. It consists, as before stated, in breaking up to a certain depth the fine capillary tubes, which in a compact soil extend to the surface and rapidly pump moisture to the point where it may be evaporated through the combined action of the sun and currents of air.

Another, and what may be called a negative or indirect means of conserving soil moisture, is to prevent the use of this moisture by one set of plants when it is desired to retain it as available to another set, as, for instance, the allowing of a crop of grass or grain to utilize the water in an orchard soil which should be saved for the trees.

It is fair to inquire whether experiments justify the statement that tillage conserves moisture. Many investigations along this line have been carried on and I will mention only one or two as illustrative. King, of Wisconsin, experimenting with soil in pots having a depth of twenty-two inches, located both in the greenhouses and in the open air, found that stirring the upper surface of the soil to the depth of four inches caused a saving of from 20 to 72 per cent of the moisture according to the kind of soil and the conditions under which the pots were located. Hilgard, of California, one of our best authorities along this line, relates an instance where in the case of two apricot growers, located side by side on similar soil, one cultivated his orchard and the other did not. Investigation showed that in the cultivated orchard the percentage of moisture in the month of July was 6.3, and in the non-cultivated orchard the percentage was 4.2. This was equal to a difference per acre of 244 tons of water in the upper six feet of soil, practically all of which would be available to the trees. The effect of this difference in the condition of water supply was seen in the fact that the cultivated trees made a growth of about three feet and the uncultivated trees of about three inches. Photographs of the fruit from the two orchards showed a difference, comparable to the difference in growth. As bearing upon the influence of growing a crop in an orchard, experiments conducted in an apple orchard in Illinois showed that the percentage of water in the upper twenty-seven inches of the soil where clean cultivation was practiced was 12, and in the soil where oats were allowed to grow, 8 per cent, and where grass was allowed to grow, 8 per cent. This means a difference in the upper three feet of the soil between the cultivated part of the orchard and the part where oats or grass were allowed to grow of 420,000 pounds of water, or 210 tons, all of which would be available to the trees. Illustrations of this kind could be multiplied to great number, but this is not necessary.

Something should be said concerning the character and depth of this earth mulch which is produced by tillage. It should by all means be a perfect mulch through having the upper layer of the earth completely and uniformly stirred. The reverse of this condition often pertains, as is seen when a harrow or cultivator is run over the surface of the ground in a way which simply cuts grooves in the hard soil and leaves ridges which are not broken up at all. Such cultivation may even do more harm than good, because it renders more compact a part of the surface which is exposed to the air, and also increases the evaporating area. Some form of tool should be used which breaks up and stirs every particle of the upper layer of earth. Probably no fixed rule should be laid down in regard to the depth of cultivation. Experimental work gives conflicting results as to the most desirable depth, just as we should expect. If the soil is thoroughly and frequently stirred to the depth of from two to four inches, the results will, in general, be satisfactory.

Late Fall Plowing—Plowing of the land in the fall may exert an important influence upon the storage of water. When the land is broken up into ridges in a loose condition which greatly increases the capacity for retaining the rain which falls or the snow which melts, through the greater looseness and uneven surface of the earth, a large storage of water is accomplished. On soils needing more water and where surface drainage is rapid, fall plowing is undoubtedly desirable. Fulton, at the Michigan Experiment Station, in comparing the effect of fall plowing vs. spring plowing on the percentage of moisture on the soil during the succeeding season, found a decided advantage in favor of fall plowing. This increased moisture made itself felt in the larger yield of crop on the land plowed in the fall. In very wet soils, where drainage should be encouraged and overwetness is likely to occur, fall plowing would not be advisable.

Early Spring Cultivation—The spring of the year finds the surface of the soil frequently compacted, and therefore in condition to lift water from below with the maximum rapidity of which a particular soil is capable. If an uncovered soil is allowed to lie in this compacted condition until late in the season, the loss of soil water is enormous. This indicates, in a general way, that the cultivation of the soil in the spring should be at the earliest date when this can be done without producing an undesirable mechanical condition because of overwetness. King, of Wisconsin, gives instances where comparisons have been made between the effect of early and late spring plowing upon soil moisture. In his textbook on "Soils" he mentions one instance where soil plowed April 28th was compared with that plowed May 6th; the former was found to contain later in the season over nine inches more water in the upper four feet than the latter, a most important difference. In another experiment performed by King, one plat of soil was plowed April 1st and another May 12th, which resulted in a retention of 420,000 pounds more of water in the upper three feet of the early plowed than in the same volume of the later plowed. This is, of course, a case where judgment must be exercised as to whether loss of water should be encouraged or discouraged.

Cultivation Immediately Following Rain—In a season when there is a scarcity of water, one rule should be invariably observed, viz.: to cultivate land bearing crops, whether fruit or otherwise, as soon as possible immediately following a rain. If enough rain water falls to percolate to the soil region where the roots are feeding, its evaporation should be retarded as fully as possible. Moreover, because the rain compacts the upper surface of the soil and increases the rate of evaporation, this compact condition should be immediately broken up. It is realized, of course, that with the pressure which often comes from various kinds of farm work during the busy season, it is not always possible to cultivate large areas of soil at the most desirable time.

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ing of land has a mixed effect as related to soil moisture. One effect is to increase the percentage capacity of the soil for stored water. A second effort is to decrease the capacity of the soil for conducting water to the surface, or, in other words, tends to retard loss of water by evaporation. Still another effect is to increase the feeding area of the roots of the plants. Without discussing this factor at any great length, it may be said, in a general way, that the resulting effect of subsoiling is favorable to an increased supply of water to the plant.

Effect of Rolling—The popular notion is that rolling land after the sowing of seed increases the soil moisture. This is true if we consider only the very upper layers of the soil. It is also true that the sum total of water contained in the upper two or three feet of earth is diminished by rolling, because this operation so compacts the upper stratum that the capillary power of the soil is increased and water is pumped to the surface faster. It should be said, on the other hand, that the compacting of the upper stratum of earth has a favorable effect upon the germination of seed. The farmer who covers corn or garden seeds by hand recognizes this fact when he compacts the earth over the seed by giving it a tap with the hoe. We have all of us noticed that in the early morning the spot which is made compact with the hoe always looks moister than the surrounding loose earth.

The Effectd of Farm Manures—It is generally understood that whenever the humus of a soil is increased its water holding capacity is increased. So far, then, as water storage is concerned, soils which are liable to be deficient in water are greatly benefited by the liberal application of farm manures or by the addition of vegetable matter in any other form.

Relation of Cover Crops to Soil Moisture—It follows from what has just been said, that when a fruit grower frequently turns under in his orchards heavy cover crops, he increases the water holding capacity of the soil, because he increases the proportion of humus. This is not the whole story however. It is undoubtedly possible to defraud an orchard of water through the injudicious management of cover crops. If, for instance, an early sown and vigorous growing crop like cow peas matures on the land and is utilizing water during the late fall months when the water should be stored for use during the succeeding season, the crop may, so far as water is concerned, do positive harm. Again, if a crop sown in the late summer is allowed to take up vigorous growth during the succeeding spring and remains growing on the land up to maturity, possibly as late as the latter part of May or early June, much water has been withdrawn from the soil, thereby diminishing the supply which later the trees will sorely need. It should be said, however, that the early turning under of a cover crop probably tends to materially reduce evaporation. The way in which this is accomplished is easy to understand. This crop, when turned under, practically constitutes a mulch below the surface because it forms a layer of coarse material through which the moisture from below is transmitted very slowly. If the feeding ground of the roots of plants is below this subterranean mulch, then the result is favorable; if above, the result is unfavorable.

Various Other Conditions Which Influence Soil Moisture — Doubtless some are inclined to ask the question whether deep tillage conserves or wastes soil moisture. No rule can be laid down in this particular. What is desirable in the way of depth of tillage depends very largely upon the character of the soil. The same should be said of flat culture as against hills or ridges. If the soil is deficient in water, flat culture is desirable, because it offers the smallest possible evaporating surface. If water is in excess, then hill culture or ridges is preferred, because here the evaporating surface is increased.

Hedge rows tend to conserve moisture by diminishing the rapidity of the currents of wind. The more rapidly wind blows over the surface of the soil, the more moisture will be evaporated within a unit of time. Soil dries more rapidly during a windy day and less rapidly during a quiet day. It is easy to see from this how a hedge row will diminish the evaporation of moisture from the areas which it protects.

Mr. C. M. Hooker—I should like to ask Prof. Jordan if he is opposed to cover crops because they tend, if allowed to stand too long in the spring, to exhaust moisture to some extent. Are you opposed to cover crops?

Dr. Jordan—No, sir. I have simply shown how a cover crop may produce harm in one direction while it helps in another.

Mr. Powell—I would like to ask the professor, after cultivation has been given all through the early part of the season, if a cover crop is not a protection to the loss of plant food if the soil was not covered later in the season?

Dr. Jordan—Undoubtedly. Now we touch the subject of plant food and humus; I was simply talking about the water side.

Mr. J. H. Jefferies—I would like to ask Prof. Jordan which will absorb the most water, having the land uneven or rolling the soil down to a level?

Dr. Jordan—Of soils having the same compactness those with an uneven surface will both absorb and evaporate the most water, but rolling would change the compactness and after rolling the evaporation would be greater. Flat culture with a soil poor in water is undoubtedly wise; ridged culture, where you want to get rid of water.

Mr. Kellogg—There is a theory you can control the development of fruit buds in the fall by cover crop at the time when the vegetative part of the tree is to be checked, in order to bring forward the fruit bud by check—rob the tree or plant of its moisture and available food and thereby check the vegetative part and allow the fruit part to develop. That is in the fall. I would like to have your idea.

Dr. Jordan—It seems perfectly reasonable, sir; if you can rob the plant sufficiently you can check its growth.

Mr. Kellogg—I have held that is the way to develop; that you can check the wood growth and control the formation of fruit buds by putting in a robber crop, if you please, to rob the crop of its food; in the one case the wood bud develops and goes on and grows, and in the other case the fruit bud develops.

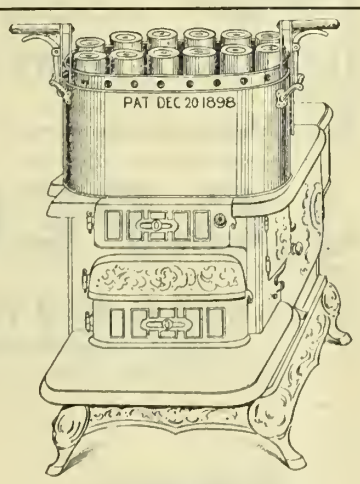
Mr. W. L. McKay—But what if while you trees are maturing, you also rob the crop at the same time?

Mr. Kellogg—My idea is you must not put on a crop to rob your trees when you want the wood growth.

Mr. E. D. Smith—I would like to ask if the fruit buds are developed because the vegetative growth is checked?

Dr. Jordan—I told you in the start I didn't know anything about some subjects. Now, I am going to refer you to these botanists or horticulturists. Professor Beach, won't you substitute for me?

Prof. Beach—Experiments have shown that the check to the growth favors the development of fruit buds.



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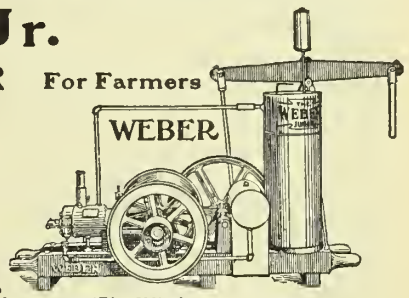

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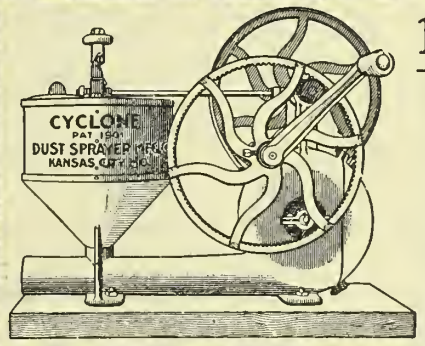

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Strawberry Gossip

By William S. Crawford

FURTHER south the planting is now mostly done, but here in the North it is not. As soon as it is done the ground ought to be gone over with a fine tooth cultivator or weeder. The weeder is much faster, but its work always struck me as too heroic treatment for strawberries, and I used it on them but a few times.

This early cultivating should be done promptly for several reasons. First of all, for the general purpose of conserving moisture. All of it is wanted now, unless in some part of the country there has been a superabundance of rain. Weeds are starting very fast, and they are much more easily killed before they get up than afterwards. Furthermore, the ground has been tramped in setting the plants, making many smooth spots from which evaporation will take place rapidly, and making the surface of the ground uneven, thus increasing the area from which evaporation takes place.

This is a matter that many of us do not consider. In a dry time many cultivate with a big horse hoe that leaves the ground in ridges, when they ought to use a fine tooth cultivator or have a pulverizer attached to the horse hoe so as to leave the ground as nearly level as possible. Just think how much less surface there is exposed to sun and wind on a strip of level land than on a similar strip whose surface is ridged and hollowed. It is these small things that don't cost much except a little thought that help make the difference between profit and loss.

The plants will scarcely have begun to grow until the blossoms will appear. All last fall the plants were storing up in their crowns all the strength they could accumulate, above what was needed for their own vital processes, to enable them to send out these blossoms and develop them into fruit. I do not pretend to pass judgment on the mooted question whether the strength is used in secreting pollen or in developing the seeds. At any rate, the process in some stage is very exhausting; and when a plant gets through with it its vitality is at the lowest ebb. Now, it is not the intention of most growers to let newly set plants bear. Then how unwise it is to leave the blossoms on until they have developed and many of them have become green berries, or, still worse, ripe ones.

There will probably be some plants in the patch that will not bloom. If the grower is one of those who transplants the little plants from between the rows of his bearing beds these will likely be numerous. Such plants were formed too late last fall to develop blossom buds. It took all the time that was left before winter to develop their own vital organs without attempting a reproductive system. They will run this summer more than those of the same variety that bloom. The man who wants small plants and lots of them better plant that kind.

On early set plants the runners will soon be appearing, and they want immediate attention. When a plant has just been transplanted it has enough to do to live. It needs its strength to build itself up without using any of it in reproduction by running. If the runners are cut off until the middle of June or first of July, the plants will have become well established and will be sending out large numbers of big, strong runners. These will make strong plants and more than enough of them for fruiting purposes. It is a great advantage, too, to have no runners in the way when the plants are being hoed in May and June.

At any season of the year the runners that are to be cut off should be cut when they first appear. It is exhausting to a plant to send runners out two or three feet, get a couple of young plants almost ready to strike root, and then have all this growth cut off. None of a plant's energy should be wasted. It should be used to build up the plant itself, so that it can produce more or larger fruit, or to make other plants that are wanted either for fruit or for transplanting.

Probably more ingenuity has been expended in trying to invent some implement with which to cut runners easily than in trying to reduce the labor connected with any other part of strawberry growing. Most of these tools fail, either in not cutting the runners until they have grown to some length, or in cutting off leaves. A boy with a sharp knife will do the work best of all, but the boy's back will suffer many an ache.

The next eight weeks will be a critical period in the life of the strawberry plants that are to bear this year. There is yet time to lose the crop by frost or have it seriously injured by imperfect fertilization of the blossoms or by blight. The danger from any of these sources is comparatively small, however, and it can to some extent be reduced still further. Some growers make a practice of removing the winter covering from the plants and spaces, but leaving it near enough at hand so that it can be hastily replaced on the plants if the prospects or weather forecasts point to a frost. If the frost comes unexpectedly by a change of temperature during the night, much of the damage to blossoms can be averted by covering the plants with the mulch before sunrise in the morning, thus letting the blossoms thaw out slowly in the dark.

Pollination is something over which we have not much control. If the weather be wet and cloudy during blossoming time, there will almost certainly be imperfect berries. Bees will not fly much in the rain, the pollen is wet and will not fly in the wind, and the sticky substance is washed off would not adhere if it were carried to the pistils. An effect somewhat similar to that of imperfect pollination is produced by the tarnished plant bug and also by the strawberry weevil, the former destroying some of the pistils and the latter destroying the stamens and sometimes the ovaries.

Leaf blight or rust is most likely to appear if a warm, damp spring is followed by a hot, dry spell. The sudden checking of a rank growth of foliage seems to put plants in a condition to be susceptible to rust. On this account there is some danger in using nitrate of soda at this time of year, as it produces a rank growth of leaves. As we all know, some varieties are almost, or quite, immune to the attacks of rust. When one has kinds that are subject to rust or the conditions of the season are favorable to its development, the safe way is to consult a spray calendar. We have never been troubled with rust enough to consider it necessary to spray.

Nearly every man who has grown strawberries for many years, unless intensely practical, has at some time dabbled in growing seedlings. Every person who has done this knows with what interest the development of the new varieties is watched and with what expectancy surpassing merit is looked for in at least one or two of them. Under the circumstances it is no wonder there are so many "best in the world" varieties.

Consider under what conditions these seedlings grow. In the first place, the seed was probably saved from the finest specimens grown by the person who saved it—in other words, from fruit produced by plants which found in his soil, climate and treatment conditions favorable to themselves. Part, at least, of the offspring inherit a predilection for these same conditions. Finding them, they

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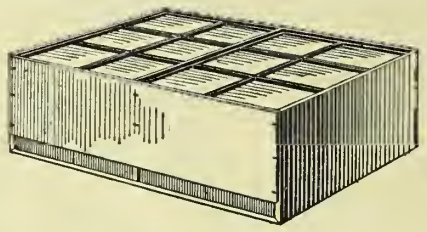

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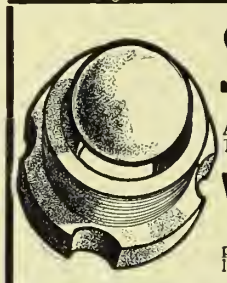

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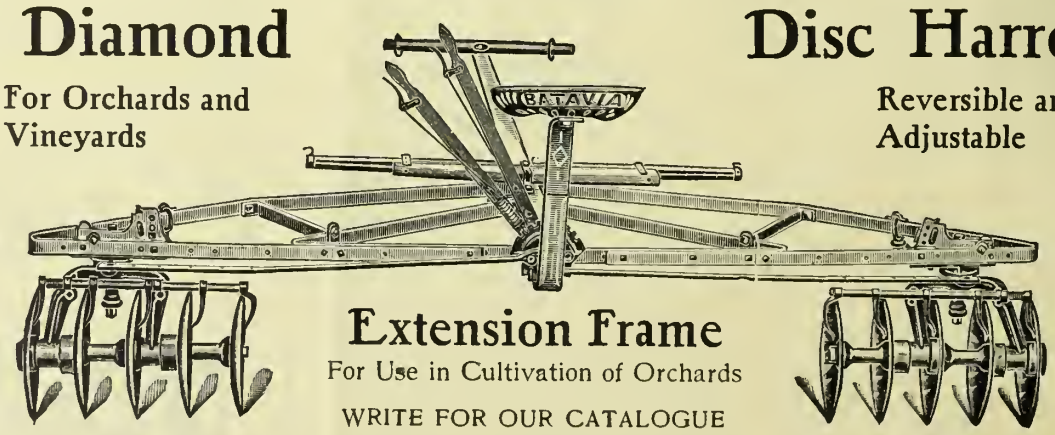

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thrive; and it is from these that the best one is selected. The originator takes more than a business interest in this seedling. He does all he can for it; and there exists between him and it, if anywhere, that sympathy which some folks believe exists between men and plants. He is able to get out of it the very best there is in it, and he does. As a result he is likely to consider it the greatest berry in the world. He is probably honest in his belief, although it may rest on a profound ignorance of what other varieties there are in the world.

With favorable conditions and extra care the variety acquires a high reputation in the neighborhood, a few local celebrities endorse it, and the originator appears to conclude that the world is waiting for that variety. Then comes the introduction. The new one is launched for better or worse, where its merits, or want of them, will shortly find for it its proper level. That level is generally lower than the originator expected. Some purchasers of plants conclude that they have been fooled and that most new strawberries are "fakes." Other more sensible ones conclude that this one is not as well adapted to their wants as some they already have. A few agree with the originator. This is not the course traveled by every variety, but it is a common one. And it is wrong.

If a variety is good only in the prejudiced imagination of the originator, it ought never to be introduced. If it is really an acquisition, that fact ought to be made known in such a way as will be most impressive to the public. Growers want to know of valuable novelties, and the originator of a good thing is entitled to his reward. Neither of these ends is accomplished when a new variety is introduced, with no better backing than the testimonials of the originator and a few persons who may or may not know anything about strawberries, but at any rate have no reputation as experts. Every state and territory has one or more experiment stations, where experts are employed to test new things, compare them with old ones, and give the public unbiased opinions as to their merits. Every new variety ought to have the endorsement of one or more of these stations before it is put on the market. As it is, probably not one in four is tested at any station until a year or two after its introduction. By that time the harm has been done, if the variety is not valuable, for the public has paid the high introductory prices for it.

It would, without doubt, be a protection to the public if every new seedling, whose introduction is contemplated, were tested at an experiment station. But at the present time there is no strong incentive to originators to have this done. The testimonials of John Doe and Richard Roe seem to go about as well with the public as those of the best station horticulturists in the country. It is, then, the public's own fault that it does not get the protection that the stations would furnish if they had a chance. Let fruit growers stop buying new varieties of strawberries unless they have the endorsement of at lease one station, and it will be a very short time until none will be out on the market unless they are able to get such an endorsement. In other words, a good part of the "sifting process" would be gone through before introduction, with no expense to the fruit growers, instead of after introduction, at an expense of a dollar or two to everybody who invested in half a dozen plants.

I do not mean any disrespect to the opinions of those who are not station horticulturists. There are plenty of men in the country—plant growers, amateurs, directors of the experiment stations maintained by horticultural societies, and others—whose opinions are as valuable as those of the men connected with the regular state establishments, but to accept their opinions in lieu of those of the station horticulturists will not relieve the existing condition. What is needed is that an official seal of worthiness shall be placed upon every new fruit introduced. Then the more good testimonials it can get from private sources the better.

There is another way in which strawberry growers ought to get more help from the experiment stations than they do. That is in the identification of insect enemies. There are a dozen or fifteen of them. They attack roots, crown, leaves, blossoms and fruit. They are moths, bugs, beetles, worms, grubs, caterpillars and lice; and they appear from the earliest warm days of spring till late in the fall. Luckily, no one plantation is likely to be visited by more than one or two of them, but these may be serious.

There are a number of these that nobody but a trained entomologist can identify. In many instances an ordinary grower would not know what to do even if he knew what the insect was. Economic entomology is making such strides at present that a method of treatment that was considered good not long ago is now out of date. The entomologists at the stations keep up with the development of their science, as an ordinary grower cannot do. They are able to identify what is sent to them and to give remedies, if any be known, and it is certainly the part of wisdom for every grower to take advantage of this expert knowledge that the state is paying for for his benefit, and which is at his service for the asking. When a man finds an insect attacking his plants, unless he is perfectly familiar with it, the best thing he can do is to send specimens of the insects and affected plants to the station of his own state and ask for advice. He may save himself trouble and financial loss, and he may also ward off a scourge. If the San Jose scale had been thus reported when it first reached this country, or when it was first taken East, how much trouble could have been avoided. Ordinarily the insect that appears to be new to the layman is some well known one that has just come into the neighborhood, but sometimes it is a new enemy, perhaps an insect that has been considered harmless or even friendly, changing its manner of living. The sooner such changes become known the better.

About this time the little chestnut beetle of the curculio family appears, which lays eggs that hatch out into crown borers. Next month a smaller beetle, yellowish brown in color, the adult of the root worm, will appear in some places. The tarnished plant bug is already at work in places where it prevails, sucking the juices from the leaf buds. It will attack the blossom buds as soon as they appear. It causes much of the "buttoning" of strawberries.

If ants' nests are numerous in the strawberry beds, it is well to be looking out for root lice. When these aphids hatch in March and April the ants carry them down into their nests among the roots, where the lice suck the juices of the plants and the ants "milk" them. The ants are very careful of their "cows" and see that too many do not get crowded on the roots of one plant. Root lice are very serious pests where they appear, especially as no remedial measures are known.

The worst insect enemy with which most growers have to contend is the white grub, because one does not know where it is until its presence is made manifest through its destructive work. It cannot be killed by spraying, and its work is generally not merely injurious, but absolutely destructive of the life of the plant. As it cannot be combatted it must be avoided. Within a few weeks the May beetles will be flying. Where they are numerous, grubs will be numerous for the next three years. These adults lay their eggs in such places as appear likely to furnish a good food supply for the young grubs. On that account old meadows and pastures are likely to be visited by them. There appear, however, to be other elements than mere food supply that are to be considered. It is claimed— I believe truly—that the May beetles are more likely to lay their eggs near trees than out in the open fields. It is also claimed that they fly low, and, when they strike a hill, they stop there, and, if conditions be favorable, lay their eggs. Two years ago we had strawberries on land that had been in pasture for years and then in corn one year. We had reason to expect trouble from grubs, but we had almost none except in one place, where the ground rose somewhat abruptly above the common level and near a couple of trees. The same year we had another patch that had been in wheat the year before and had come up to clover and grass, whose seeds had been carried out in manure. The only trouble we had with grubs on that piece was on a small hill. Last year we had about four acres of gladiolus bulbs on ground that had been in timothy meadow for five years. In digging the bulbs we found the grubs very thick on one side near some trees, while on the other side very few were seen. There may be no relation between the trees and elevation and the grubs, but there appears to be.

The ordinary rule is not to plant strawberries on land that has been in grass within two years if it can be avoided, but even with this precaution one will sometimes suffer severely from the depredations of grubs, while another will plant on old sod and have little trouble. The worst time we ever had with grubs was on land that had been in wheat the year before and had a little growth of self-seeded grass on it. It had not been a meadow for several years. When one goes over his own experience and reads the experiences of others, he is forced to the conclusion that we know but little about the white grub and that we have to take chances after using every precaution known to us.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

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THIS IS A GENUINE GOLD FILLED WATCH
in appearance, superbly engraved, double hunting case, stem wind and stem set.
HIGH GRADE RUBY JEWELED WORKS
which is absolutely guaranteed for
25 YEARS.

Send this to us and we will send the Watch & Chain C. O. D. 3.75 and express charges to examine. If as represented, pay 3.75 & Ex. charges and it is yours. Write if you desire Ladies' or Gents' size.

CALUMET WATCH CO. Dept. 320 Chicago

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS

ST. JOSEPH, MISSOURI

Volume Eleven APRIL, 1902 Number Four

W. G. CAMPBELL, JR.....General Manager
JAMES M. IRVINE.....Managing Editor

Chicago office .....No. 35-37 Randolph Street
W. B. Leffingwell, Manager.

New York Office, 928 Am. Tract Society Bldg.
W. B. Leffingwell, Manager.

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UNION LABEL

We appreciate very much the compliments which have been paid to the new department in the Western Fruit-Grower, viz., the strawberry department, as conducted by Wm. S. Crawford, Cuyahoga Falls, Ohio. This improvement was needed, and is appreciated. The following letter from R. M. Kellogg, whose work is so well known to our readers, is certainly high praise, for Mr. Kellogg not only knows about growing strawberries, but also knows what constitutes interesting, helpful matter for a department of this kind. He says:

"I congratulate the Western Fruit-Grower on having secured the services of the son of that veteran strawberry grower, Matthew Crawford to conduct the small fruit department. Matthew Crawford has long been known as a man of sterling worth and as reliable as gold itself, with an experience of more than the average life time, besides being blessed with an observing turn of mind and the ability to distinguish points of excellence in a variety.

"He has probably introduced more valuable sorts of strawberries than any other man in the country and few kinds have failed to meet his claims, because he never sends out a new berry until it has been thoroughly tested.

"This son, Wm. S. Crawford, has likewise spent his life in the work and cannot fail to minister successfully to the needs of the readers of the Western Fruit Grower. I congratulate both you and the readers of the paper."

A letter from Secretary Goodman announces that the summer meeting of the Missouri State Horticultural Society will be held at Eldon, Miller County, June 10 to 12, and the winter meeting will be held at Springfield, December 2 to 4, 1902. This is the first time the meeting of the society has gone to Miller County, and a good meeting is expected at Eldon. The date, however, we believe, conflicts with that of the American Association of Nurserymen, at Milwaukee, and this will prevent the attendance of some who would otherwise be present. The winter meeting will be a record-breaker, if all reports are true. Springfield will make special effort, and situated as the city is in the heart of a great fruit section, the meeting will be a big one.

If five new subscribers entitle our friends to a place on our roll of honor, then W. E. Carlin, Jerseyville, Ill., deserves a place at the head of the list. He has sent in thirty-eight new subscribers since the first of the year, and the end is not yet. Mr. Carlin is first vice-president of the Alton Horticulturla Society, and is a hustling grower of fine apples and pears. May there be many more like him.

Spray pump manufacturers—both dust and liquid—report larger sales this spring than ever before. If this is followed by a persistent, intelligent use of the pumps, then we shall hope for a larger percentage of perfect apples at packing time. In this connection we would call attention to the crops of two readers of the Western Fruit Grower, whose fruit has been commented upon before. They are John Brazelton & Sons, Wathena, Kan., and W. S. Martin, DeKalb, Mo. Both these gentlemen sprayed their fruit, and both had splendid yields. At the meeting of the Missouri State Horticultural Society these gentlemen had samples of their fruit together on the exhibit tables, and all of it attracted much attention. Now, at this date, April 9, Jonathans from the Brazelton orchard were still sold on the St. Joseph market at 6 cents per pound. Mr. Martin's Ben Davis were so very fine that when they were opened up the first week in April they were quickly bought by fancy trade at 5 cents per pound. The grocer who handled this fruit said he had never had a more satisfactory lot. He gave it as his opinion that spraying not only brought better fruit, but sprayed fruit keeps longer. He will pay more for this class in the future, he says. There is food for thought in this experience.

We had intended publishing this month the "roll of honor" containing names of those who have sent in five or more new subscribers, but find we are too crowded for space, and will postpone its publication until May issue. This list is now a good one, but we hope there will be many additions before it is published. Let all who are interested in the development of the fruit industry help the work by building up a great fruit paper.

In our reports of fruit prospects which are published in this issue, not every section is covered which should be. If any of our readers know of sections from which we should have reports, we will be glad if they will drop us a card specifying the section which should be represented. We send out return postal cards every month for these reports, and will send to those in sections which are not represented in our published list.

A letter from Prof. J. C. Whitten, now pursuing scientific studies in Germany, announces that he will return home late in the summer, ready to begin his work at the Missouri Agricultural College in the autumn. He has had a good year, he writes, and feels that he has been amply repaid for his studies. Fruit growing over there is different from our horticulture, and he says he believes the growers have too many varieties for the most profit. Incidentally, we may say that Prof. Whitten mentions that while there are many excellent scientific journals over there, he has seen nothing "on this side of the water which can compare with the January issue of the Western Fruit Grower as a real help to the practical fruit grower and farmer."

We have a newspaper clipping giving an account of a plan which is followed by D. A. Rupp, Sidney, Iowa. Last year he inserted an advertisement in the local newspaper stating that on a certain day the children of the town were invited to visit his place and eat their fill of strawberries. Mr. Rupp evidently believes in creating an appetite for strawberries, and pursues a very effective plan. In this connection we would recall the experience of a man who planted a large strawberry bed near a Missouri town, where previously few berries had been grown or consumed. The first year he had a very large crop, and at the height of the season gave a strawberry and ice cream supper free to all who visited his place. Hundreds accepted the invitation, and persons ate their fill of fresh berries who had never done so before. As a result of this advertising, or sampling, if you please, a market was created at once, and the grower who had thus treated the town people was amply rewarded. Merchants and manufacturers of food products find it pays to create a demand for their goods by distributing free samples, and professional "demonstrators," as they are called, go from town to town for this purpose. Why not fruit growers do the same thing in a community where the people do not appreciate the value of fresh fruit? We will add, however, that this is not the year to give away strawberries or other small fruits—they are worth too much.

The reduction in size of the Western Fruit Grower this month is due to the fact that the season for advertising of some lines is drawing to a close. The season has been a very prosperous one for nurserymen and other advertisers, and we wish to thank our readers, on behalf of all our advertisers, for their support. The Western Fruit Grower has been a better medium this year than ever before, owing to its increased circulation, and next season will be even better than this one. Our circulation is now 20,000 copies a month, and with the support and co-operation of our readers we hope to have 30,000 by the first of next January. This number can be secured, and must be. It will mean a better paper for our readers, better for advertisers, and better for the fruit industry generally. Let us build up a fruit paper which is in keeping with the importance of the industry.

The annual report of the Missouri State Horticultural Society is now out, and is fully up to the standard of former issues. Excellent likenesses of Uncle Sam Miller and A. Nelson, officers who died during the year, are shown, and the last public utterances of the gentlemen are given, for the June meeting was the last they attended. The report of the winter meeting at St. Joseph is especially full, for the stenographic notes were very complete, and all of them could not be used. Missouri's reports are always among the very best, and this latest one is no exception.

Reports from strawberry-growing sections confirm the first estimates of the probable crop. The strawberry crop will be small, and the grower who has any berries should prepare to carefully handle them. Everyone expects a good crop of apples, and we hope the predictions will be fulfilled.

The attention of readers of the Western Fruit-Grower is called to the new strawberry, Nichol's Granville, introduced by A. M. Nichol, Granville, Ohio. This strawberry has been recommended very highly as a business berry by all who have seen it, and it is recommended for general trial by all growers. Mr. Nichol, the originator, is an experienced grower, and knows the merits which should be possessed by strawberry varieties. He has originated a number of good tomatoes, and could not afford to send out anything not worthy. Write Mr. Nichol for prices and test the new berry on your own grounds.

A KIEFFER PEAR ORCHARD

For one dollar we will send by mail postpaid 12 nice little one year old Kieffer Pear Trees. Order at once and ask for prices on other nursery stock.
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Box 25, New Haven, Mo.

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The money maker of the 20th century. Place your orders for seeds at once. Book of instructions sent on receipt of 10c. W. S. GENTRY, Seymour, Mo.

Poor Soils are made richer and more productive and rich soils retain their crop-producing powers, by the use of fertilizers with a liberal percentage of

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Write for our books—sent *free*—which give all details.

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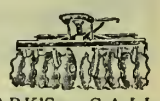
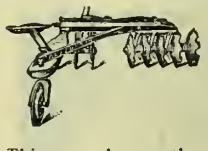
CLARK'S DOUBLE-ACTION Cutaway Harrow will easily move 15,000 tons of earth one foot in a day.



CLARK'S SINGLE-ACTION Cutaway Harrow, made in 54 sizes, from 3 to 16 feet wide.



CLARK'S CALIFORNIA SR. ORCHARD PLOW and HARROW plows a furrow 3 feet wide, 6 feet to the right of the pole. Send for circulars and price.

This cut shows the CLARK'S EXTENSION A-6 Cutaway Harrow, made in 12 sizes.

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CLARK'S 8-ft. Leveling and Smoothing Harrow; with it the surface can be made as true as a mill-pond.

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HIGGANUM, CONN., U. S. A.
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APPLES, CHERRIES GRAPES AND

Only five failures of crops in over fifty years—1600 to 2,000 feet above sea level. Nearest to Eastern markets, above the danger line for frosts; and low rates of freight. Healthiest county in the United States—see Census Statistics. Good homes and hospitable people.

Land $5.00 to $30.00 Per Acre

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Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down Handy Wagon to use about the place? We will fit out your old wagon with Electric Wheels of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.
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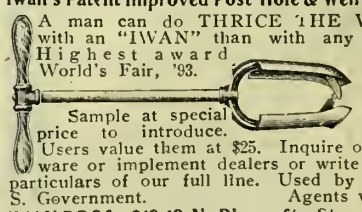

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Users value them at $25. Inquire of hardware or implement dealers or write us for particulars of our full line. Used by the U. S. Government. Agents wanted.
IWAN BROS., 212-13 N. Bloom St., Streator, Ill.

Nebraska-Grown Trees

are hard to beat. We pay the freight; our catalogue is free. It will save you money. Apple grafts made to order. Scions taken from bearing orchards if preferred.

BOWER NURSERIES
BOX 20, FAIRBURY, NEB.

Letter from G. M. Hitchings.

Our readers will remember reference which has been made to the well grown and profitable orchard of Grant G. Hitchings, South Onondaga, N. Y., and will, we are sure, be pleased to hear from him concerning his methods of planting and propagation. He says:

"I notice in the March number of Western Fruit Grower that Mr. Allison E. Morlan, in criticising Major Holsinger's writings, has also taken my name in vain. And insofar as he has seen fit to quote a method of mine without quoting my reasons for the method, I think he deserves an answer.

"He quotes the following from the Rural New Yorker: 'I would not go to the bother to select buds or grafts from best trees.'

"Now, the reasons why I don't do this is because I have had such satisfactory results by buying my trees direct from the nursery. My observation leads me to believe that the after treatment of your trees, and especially the treatment of them while fruit buds are developing, has more to do with producing good fruit than any so-called pedigree. Any observant grower knows that soil varies in its capacity to produce fruit in different parts of the same orchard. A case in point: There are ten Ben Davis set in our orchard, commencing where the soil is very fertile and extending to where the soil is poor, the rock being less than a foot from the surface. No. 1 always produces fine fruit, but as you approach No. 10 the fruit grows paler and smaller as the rock approaches the surface. Does Mr. Morlan think some pedigree cions would improve No. 10? The same thing happens when the root pasturage of your trees becomes restricted from any cause such as overcrowding or impoverished soil. Now, to test this matter I have taken this spring's grafts from a tree that bears pale fruit and from one that bears red fruit and grafted them onto a tree that bears red fruit. Not until I see those pale apples from the grafts in their new surroundings will I take off my hat to Mr. Morlan.

"Pedigree strawberries have already been pretty well ventilated in Western Fruit Grower. Practical growers know that a new bed well taken care of the year before preferably on new ground, is the place to procure new plants. The best plants in this bed is the first runners that set because of more vitality from a longer season of growth. I shall in the future select plants of this kind rather than to pay for pedigree.

"As I have no expectation of selling nursery stock, whether Mr. Morlan bothers to or bothers not to buy doesn't concern me. The ideal tree to buy is one grown on new ground by a careful nurseryman who not only knows how to grow good trees, but does it; and who don't depend on some catchy word or phrase to sell them. Trees grown after the plan described on ground that has not been exhausted by previous tree growing are full of the same kind of vitality as the well grown strawberry plants described, and if they receive intelligent after treatment the results in fruit will be satisfactory. Make the conditions right for the trees to store up an abundance of vital energy and they will respond with good fruit. Many of our pedigree friends claim that it is loss of vitality that is the trouble with our plants. Make the conditions right for proper development and they will regain this so-called lost vitality. I don't believe that pedigree grafts or pedigree plants are a panacea for future starved orchards.

From Mr. Morlan's article I fear he belongs to that class of men who are like the old woman who said she was open to conviction, but she would like to see the one who could convict her.

GRANT M. HITCHINGS.
South Onondaga, N. Y.

Birds and Fruit Growers.

I, as a fruit grower with a small capital, will give my experience with birds. Until last year I got no cherries to speak of for the birds. Two years ago I only picked two crates of marketable cherries from about fifty trees. The birds took all the rest, and there is a row of big mulberry trees 300 yards away from my cherry orchard. I tried all plans I could think of to scare them away. I made black snakes out of oil cloth. I took red flannel for the mouth and black beads for eyes. It served well for a little while. Last year I resorted to shotgun policy. I used a 22-caliber with shot shells, and sold about $100 worth of fine cherries.

Peaches were attacked by birds also. The first peach that ripens a bird has his bill into it first. A few of us who spray have to battle the insects until our fruit is ripe; then the birds take the most of it. There are five classes of birds which are destructive to fruit, which I will name: The oriole, of which there are many species; all of the yellow birds belong to that family of birds. They are the most destructive, not only to fruit growers but to the gardener. They will split open pea pods before the pods are half grown; next the blue jay, which eats apples, cherries and peaches; then comes the catbird, all who grow fruit know what it is; then the brown thrush; and the last of all is the mocking bird that the city people with their stocks and bonds and money to loan and the farmers with their hundreds of acres of wheat, corn and cattle are anxious to protect. They will set up a howl to protect the birds, and yet men who live in the cities and towns will drive out in the country in the afternoons and shoot the innocent dove that is feeding her young doves on insects, and let the young starve to death; then cry with a loud voice to protect the birds. I do not kill or allow to be killed birds that don't eat fruit. I destroy only the five classes of birds that I have mentioned. All other birds are welcome to my fruit farm. I would like to hear from some one else on the bird question.

Wichita, Kan. FRANK AYW.

Doesn't Need Bees.

I notice an item under the head of notes, in last number of the Fruit Grower, of a Western orchardist having no bees, experimented by borrowing some colonies for his orchard, and so well pleased was he that he has made arrangements this season to transfer to his orchard all belonging to the one owning the bees. The orchardist will furnish the land for the good the bees do him. Now, I suppose he means the help it is claimed these bees do to fertilization and fruitfulness.

We have no bees in our part of the country here, and we have an abundance of fruit every year. The theory and that is all there is of it, that bees are necessary as pollen carriers to insure fruitfulness is a myth. Nature don't do business that way.

Frankling, Ind. INO.

We are still prepared to fill rush orders for

SPRAY PUMPS

We are Western Agents for the well-known Morrill & Morley and Field Force Pump Co. lines of pumps.

Chemicals for Spraying

Send at once for catalogue quoting prices on all kinds of chemicals.

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Reference: Any bank in St. Joseph; editor Western Fruit Grower

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Lady Garrison Strawberry
for profit; 13,000 qts. to acre. Before you buy plants elsewhere give me a chance at your order. I can supply any quantity, 1,000 to 200,000. Kansas and Cumberland Black Raspberries. Blackberry plants. Cata. free.
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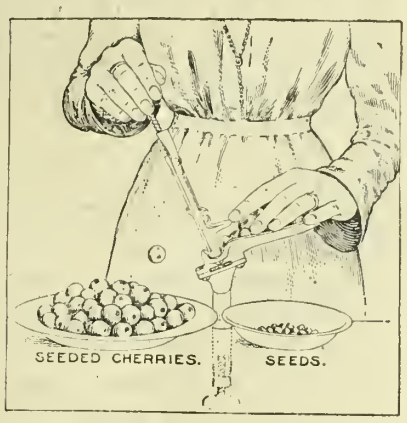
SPRAY PUMPS
Our pumps are all brass, are durable and easy to operate. We guarantee them. Agents wanted. Write for catalogue and get treatise on spraying free.
J. F. GAYLORD, Catskill, N. Y.
Successor to P. C. Lewis Mfg. Co.

Rollman Cherry Seeder



THIS perfect Cherry Seeder does not crush the cherry or cause any loss of juice; a practical machine for large, small or California cherries. The seed extracting knife drives the seed into one dish and actually throws the cherry into another. The marks of the knife can scarcely be seen on the seeded fruit. It seeds from 20 to 30 quarts per hour.

At your dealers for 75 cents, or sent by mail or express, charges pre paid, on receipt of $1.00.

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Spraying Mixtures
undeniably constitute the best, simplest and most reliable form in which to buy spray material. They are put up in cans and bottles, in the most concentrated form and need only to be mixed with water and they are ready for use. As they are all liquid in form there can be no precipitation or settling to the bottom. They always remain in solution and there is no consequent danger of burning foliage and injuring plants, vines, trees, etc. Sold by dealers and agents.
Use Rippley's Prepared Spraying Mixtures and Rippley's Spray Calendar and Make a Success of Spraying. Our Calendar tells when to spray and what solution to use on the various Trees, Plants, Vegetables, Cotton, Tobacco, etc.
Write at once for catalog of Spraying Mixtures, Sprayers and Breeders Supplies. Order early.
Rippley Hardware Co., Box 217, Grafton, Ill.
Manufacturers of Sprayers and Breeders' Supplies.

WHY CAN WE SAVE YOU MONEY ON A VEHICLE, HARNESS OR A FLY NET?
Because We Have No Agents. Can we really do it? We say yes. Can we prove it without cost to you? We can. How? We will ship you a harness, saddle or vehicle, without your sending a single cent, and let you look it over at your freight house, and if you don't find we have given you the biggest bargain you ever saw or heard of, return the goods to us at our expense.

We give with each vehicle a 2 year iron-clad guarantee, protecting you from poor material and workmanship. Our vehicle catalog describes the largest line of buggies, road wagons, phaetons, surreys, spring wagons and carts, harness and fly nets ever shown in one book. It's Free. Send for it.
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500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries
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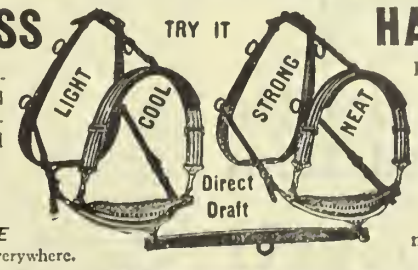

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Grape Growing in Oklahoma

IN my last, the vines had matured their second season's growth and were ready to be pruned as soon as they became perfectly dormant. We left but two shoots to grow, so now have two matured canes with a few laterals. Select the strongest, best formed cane for the first crop, remove the other; also trim off the laterals on the cane you leave and cut it back to, say, twenty buds, if it is a good, vigorous vine; but if a little on the weakly order, cut it back in proportion to its apparent ability to mature a light crop of fruit and gain in vigor.

The pruning should all be done in December and January, so as to give you ample time to construct your trellis, tie up the vines and spray them before the buds start.

As soon as the pruning is done and the brush removed from the vineyard, you must finish your trellis. In my last article on this subject I stated there should be a trellis post for each three vines, but I neglected to state that the first and second posts at each end of the rows should be but two vines or sixteen feet apart. This is done for convenience in bracing. String a single No. 12 galvanized wire from the top of the second post to the bottom of the end post, drive a staple in each post to keep the wire in position. When all brace wires are on, you may proceed with wire stringing through the rows. I always use No. 12 black wire for my trellis for several reasons. It holds the tendrils better, does not break so easily, is cheaper and in every way is more satisfactory than galvanized wire. The matter of stringing wire seems quite simple, but is oftentimes made quite laborious. If you have not got a reel, an easy plan is to lay the coil of wire at one end of the row, cut the tie wires, loosen one end, and bend it into the form of a crank. The wire will spring up in coils or rings, which must be attended to by one man, to see that they come off regularly, while another man goes down the row of posts, turning the crank end of the wire in the direction of the uncoiling, about one turn to each step. This takes out all kinks, and when the man has reached the opposite end of the row he should place the wire around the end post and twist it, but should not staple it fast. It should, however, be stapled perfectly solid to the second post, and loosely to all other posts till the second from the end is reached. Here the man who has been attending to the uncoiling guessing at the possible slack in the wire, places it between the prongs of a stout clawhammer and turning it once around the hammer, and using the second post for a fulcrum, draw the wire perfectly tight by turning the hammer around the post. A little practice will regulate your work in this line. While the wire is being held in this position it should be stapled perfectly solid to the second post, after which it may be stretched by hand to the first post and twisted.

I place the lower wire thirty inches from the ground, the second twelve inches from the first, and the third fifteen inches from the second. Unless the wires are quite slack they may be brought up perfectly taut each spring by simply driving the end posts a little deeper.

Having completed the trellis, the next thing in order is to tie the vines to the lower wire with willow or string. Willow is best and is used as the rye straw, except that it is held in the left hand, and the butt end is pushed from below the wire, drawn over the cane, given two twists to the right with the left forefinger, and the end tucked under the wire, when the willow is cut off and is again ready for use. These willows are of the Osier type and are grown especially for ties. Any one having a vineyard of any great proportions, or who has one of smaller proportions and has no available tie willows growing on his place, should have a permanent plantation of them on his farm. They grow quite readily from cuttings in any moist situation. The vines should be tied at the head and at the ends of the arms. For the former a heavy willow should be used and not drawn up tightly, while in the latter a small willow should be used, wrapped twice around, and tied firmly. The fact should not be lost sight of, however, that this trying of old canes is always to be done to the lower wire only.

The young bearing shoots from these arms are tied to the second and third wires at intervals during the early summer, with green rye straw, as described in a previous article. The shoots are spread out in fan shape on the middle and upper wires and will soon fasten themselves by tendrils after having been temporarily held in position by the straw ties.

The straw tying must not be neglected nor postponed under any conditions, but must be done as soon as a few shoots on each vine are of sufficient length to reach the next wire, for a good vigorous grape vine don't wait for any one's convenience during the growing season, and if neglected soon becomes an inseparable, tangled mass.

Two tyings usually suffice; then go ahead of the plow or cultivator and pick up all down shoots and tuck them in securely.

A prime essential in the successful conduct of a vineyard is a first class sprayer. Not a mere toy of an affair, but one that will do the work quickly and thoroughly. The cost is moderate, and if a first class outfit is provided and well cared for, it will last for a number of years. A good sprayer can be bought for $15, but a great deal better and cheaper one can be bought for $25. The difference in original cost is more than offset by saving of time and spray material. After having tied the vines to the lower wire, and before the buds begin to open, spray the vines thoroughly with a solution of copper sulphate and water, in the proportion of six pounds of copper sulphate to fifty gallons of water. It will be too late, however, to do that with safety in Oklahoma by the time this article reaches the readers, for the buds are now beginning to unfold. The regulation Bordeaux mixture will have to be used, which is the same as the copper sulphate solution, except that it contains four pounds of fresh lime to the fifty gallons of the solution. The formula and full directions for its mixing and application may be had from the experimental station of your state, or from the Western Fruit Grower. The spraying should be repeated when the growths are from six to twelve inches long, and again as soon as the grapes are through blooming, or at the time when the largest of the grapes are about as large as number four shot. The matter of spraying is looked upon by a great many small growers as a fad and of but little or no consequence, but at the same time they wonder why the large grower always has nice clean, plump fruit, while his looks scabby after one-half of it has dropped off.

From early spring until the grapes have colored a thorough system of cultivation must be kept up in the vineyard. There are various tools that may be used to advantage in vineyard cultivation, but I find one of the best to be the Oliver Chilled Vineyard plow for one horse. It is so constructed that the soil may be thrown either to or from the vines without danger of the horse single-tree or plow coming in contact with the vines. They are not an expensive tool and are really indispensible in vineyard work. It is almost impossible to plow a vineyard with a two horse turning plow and put it in anything like decent condition, without doing the vines an endless amount of danger and losing considerable fruit. The first plowing is done in the spring, as soon as the weeds start throwing the dirt from the vines toward the center, and is followed up at once with the hoe and the little ridge left under the vines is pulled down into the furrow. The ground is harrowed while fresh and put in as good condition as you would have your garden for planting. After each rain and as soon as the ground can be worked, a five tooth cultivator will thoroughly break the crust and destroy all weeds that have germinated. The ground should be worked after each rain, but it should also be worked just as frequently even should the rain fail to come. A good mulch of fine earth is necessary to prevent evaporation, and the longer the interval between rains the deeper must be the mulch.

The space directly under the vines must be kept scrupulously clean and free from a hard, smooth surface. When the weeds and grass are cut off see that "the man with the hoe" loosens up the surface. Have him remove all sprouts from the base of the stalk, not by chopping it off, but by pulling it off.

About the time the grapes begin to show a sign of coloring, give the vineyard another light plowing with the vineyard plow, this time throwing the soil to the vines, following up with the harrow and hoe, and your

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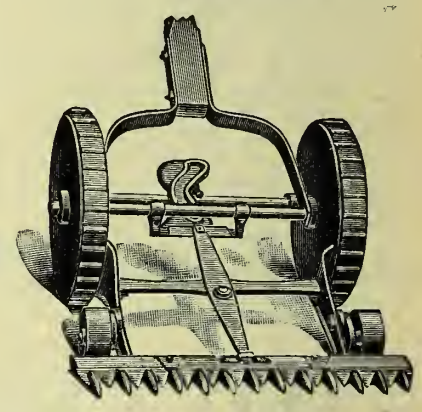
Rydal, - - - - Kansas



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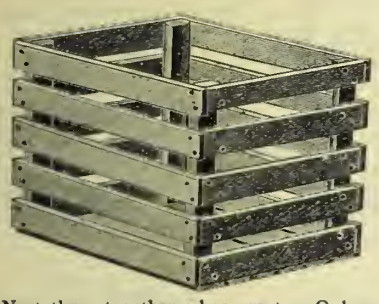

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F. H. Bruning, Kent, Iowa.

crop is practically made. If, however, the weather should continue dry, cultivation should be kept up until the grapes are ready to pick. Now we are about to begin the all-important task of picking our crop of fruit. Have you made any provisions for the work? No. You should have gone to your clothing or shoe merchant and bought a few empty hat and shoe cases, made of light, soft pine. At times when it was too wet or too cold to do much of anything outdoors, these could be worked up into picking trays for handling your crop, and when picking time arrived you would have been ready for the work. I think I hear some good brother over in the amen corner inquiring what I mean by a picking tray, so I will try to explain. I carefully separate the boxes purchased from the merchant, remove all nails, and from this material I construct boxes or trays of the following dimensions: Ends, made from the heavy or one inch material, 14 inches at the top, 10½ inches at bottom, and 7 inches deep, with sloping edges. At the top of each of these ends I securely nail a handle of one inch material, five inches long and three inches wide, and nailed in such manner as will allow one-half inch of the handle to project above the top of the end. This is done that the crates may be stacked on top of each other without danger of the upper ones slipping endwise and dropping into the one below and mashing the fruit. Now, with the thin material, which is cut thirty-two inches long, I form the sides and bottoms of the trays, thus forming a picking or local market box that holds just one bushel, or fifty pounds of grapes, when level full, providing the fruit has been carefully packed into it instead of being carelessly dumped.

With a good supply of these picking ago, we will pick, handle and market our crop for the coming season in my next. I had hoped to cover the entire ground in four articles, but being limited in space by the publishers, who have so many good things to tell us, I am compelled to postpone the gathering and marketing of the crop for one month, irrespective of the weather.

Oklahoma. C. A. McNABB.

The Gano Apple Again.

The discussion in recent issues of the Western Fruit Grower concerning the identity of Black Ben Davis and Gano apples has awakened much interest. There are a number who have written the Western Fruit Grower on both sides of the controversy. This month we present what Secretary Goodman says, and what Mr. E. H. Riehl, Alton, Ill., horticultural editor of the Rural World, says regarding the matter.

Mr. Goodman's letter follows:

"It is the province of our State Horticultural Society to settle this business of Gano and Black Ben Davis. We shall arrange to have a committee to visit the original tree in Arkansas and many of the trees grafted from the original tree, and then compare with the Gano, Etris, Red Ben Davis, Reagan, etc.

"I saw the apples at the Missouri state meeting and at the Kansas meeting, and pronounced them Gano. The fact that they tasted different from Gano is no argument of difference. We all know very well that apples grown in different parts of our state even vary greatly in quality; how much more so those which are grown in the mountains or on the Pacific slope. I could select Gano grown in our Ozark orchards that no one would call Gano by the taste. I have seen apples from the original tree in Arkansas and compared them very carefully with the Gano, and always pronounced them Gano. I have seen many of them from trees grown from the original tree, and still they were Gano to all intents and purposes as much so as are all the class of Amsden peaches really Amsden in fact, no matter if they did originate in various parts of our country.

"This past winter I have had numerous specimens of apples sent me from Oregon, the Rocky Mountains, Illinois and Missouri, wanting to know if they were Gano or Black Ben Davis. In every instance they proved to be the Gano, so that I was easily satisfied of their identity, in spite of the location where they grew and the variation which could easily be traced to location. We are anxious that all these matters should be settled right, and this season we shall have a thorough examination made in this question. Professor Stinson, I thought, had settled this matter in his bulletin on Arkansas apples, or our society would have taken it up before.

"L. A. GOODMAN."

Mr. Riehl says:

"I am pleased to know that there are some careful readers who are ready to assist in getting important points clearly before the public. Mr. May is only one of many who are not willing to accept the fact that there is a difference between Reagan and Gano; which is not to be wondered at, as the appearance of the fruit would puzzle an expert. These belong to a class of apples consisting of a number of varieties, all of which resemble very closely, both in appearance and general character.

"For illustration let us use the yellow Jersey strain of sweet potatoes. There are some six or eight varieties, which are so near alike that if exhibited side by side it would scarcely be possible for any one, excepting, perhaps the exhibitor, to pick out the different varieties. It is no more fair to call Gano and Reagan identical than it would be to call Yellow Jersey Bunch the same as Yellow Jersey of Early Carolina just because the tubers look the same. The Jersey Bunch makes practically no vine, while the Early Carolina has a vine of from four to ten feet long. I hope this discussion will induce many others, as well as Mr. May, to test these two varieties for themselves; but would advise the planting of trees strictly true to name, in connection with the top working."

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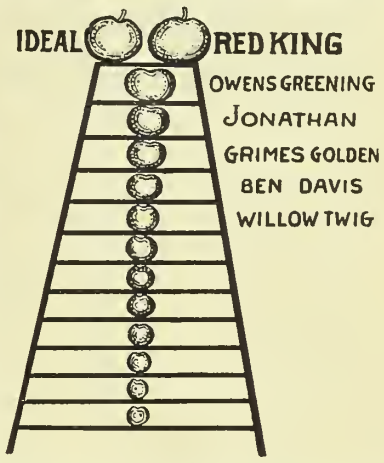

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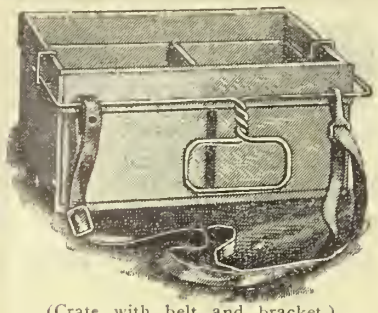

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Major Holsinger's Department

(It is due to Major Holsinger to say that most of his matter this month is in our "Questions and Answers" department, for he has replied to many queries from readers of the Western Fruit Grower. The matter was placed there, for we believed our readers would be most apt to look for it there.—Ed.)

J. H., Hiawatha, Kan., asks: I hear much of the peach tree borer. How am I to know when the trees are affected by them? What is the best way to avoid them? Wouldn't dipping the roots in some liquid like bordeaux mixture prevent their working in the roots? I am a novice and ask for information.

The peach tree borer is a blue, waspish looking insect, not unlike the mud wasp, so common to our country, but a different insect.

They deposit their eggs in the tree at the collar. The reason any "dip" would be of no avail is they do not eat, only lay their eggs in the tree. You cannot fail to determine whether your trees are affected by them, as you will be able to detect it at once by the exudation of gummy matter on the ground about the collar of the tree. Whenever this occurs be assured your trees have borers. It is now necessary for you to remove them. First scrape away the ground from about the tree, and with a good stout knife scrape the tree vigorously. In this way you will remove many of the larvae. If they have entered under the bark of the tree follow them through their meanderings with the point of the knife, cutting away the bark that is discolored until you find them. In transplanting the peach the roots should be thoroughly examined for borers. Whenever they appear they can be cut out. I do not think it injures a tree to cut them out. A tree thus affected will be just as good after the borer has been removed, providing always the tree has not been girdled too badly. Frequently trees are sent out by nurserymen badly affected, which, being planted, the borer develops, and in this way is disseminated. Once I received 3,000 trees from an Illinois nurseryman, 1,000 of which were past redemption and had to be burned.

At the March meeting of the Missouri Valley Horticultural Society there was little discussion, although the attendance was fair. The following excellent paper was read at the meeting:

Orchards and Poultry—How to Combine Them Profitably.

When we consider the advantages and products of the hen we ascribe to her a value that is hard to compute. For the fruit grower she is his most faithful friend. She is a symbol of thrift, energy, sagacity, shrewdness and affection. She produces more wealth and prosperity and does more good in the production of her kind than can be ascribed to any other factor in the material world. She waits not to be fed, but give her a chance and she will scratch for her living.

An early frost may kill the blossoms, rust and rain ruin the strawberries, a hailstorm may puncture the peach and apple, mildew and rot finish the grapes; a multitude of insects sting and destroy, and the drought takes everything that is left. But our faithful friend has come through it all, laid just as many eggs, hatched just as many chickens, and is the best dividend payer on the farm.

To attain success it is important that the work be carried on in a businesslike manner. Set your standard high and work up to it. Give your poultry plant as much thought and attention as any other department on your farm, keeping in mind that you can get returns from your poultry the year round. But it means work combined with common sense, and clean, dry quarters is the secret of health in your flock.

Early in the spring let them range on the strawberry bed, almost up to the time of ripening. After the last picking let them clean up the patch. They will destroy a multitude of insects. It has been noticed that in orchards where poultry are confined that the trunks of the trees seem to have a much healthier appearance than the trees in orchards not so cared for, and that there is less imperfect fruit.

In the plum orchard they are the best cure for the curculio. A good plan for small orchards at least is to go from tree to tree every morning as soon as the dew is off the leaves, jar the trees, call the chickens, and they will do the rest. In short, they are the enemy of whatever destroys plant life. As for the weeds and seeds they eat, how can we estimate the good they do in this line. For early risers they beat us all.

The breed that is the most profitable for the fruit grower depends on several conditions. For one's preference or fancy for some particular kind, has much to do with one's success. We seldom succeed with anything we dislike. Whether the fowls are to be kept in confinement or allowed free range is another. Do you want eggs or broilers? Fancy stock or common? For myself I prefer Light Brahmas or Plymouth Rocks. The former first for the reason that they stand confinement and cold weather better; lower fences required; less subject to disease; make good winter layers; average in weight when full grown about 11 pounds, so when you market your surplus stock you have something to sell. They lay about as many eggs and larger. Seven generally average a pound. They are, however, rather poor setters.

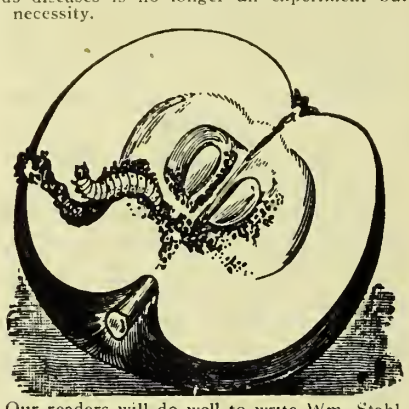
For one who has had experience with poultry would advise that full blooded stock be kept of whatever breed you select. The cost of keeping is the same, but the returns very much larger.

We must therefore conclude that th American hen is a necessary adjunct to all well regulated fruit farms and we cannot afford to do without her.

ALLEN WILSON.
Muncie, Kan.

SPRAYING FRUIT TREES.

The question of spraying fruit trees to prevent the depredations of insect pests and fungus diseases is no longer an experiment but a necessity.



Our readers will do well to write Wm. Stahl, Quincy, Ill., and get his catalogue describing twenty-one styles of Spraying Outfits and full treatise on spraying the different fruit and vegetable crops, which contain much valuable information, and may be had for the asking.

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It marks furrows, drops and covers the seed, all in one operation. The most scientific planter ever introduced. Address
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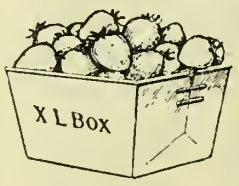
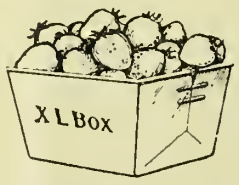
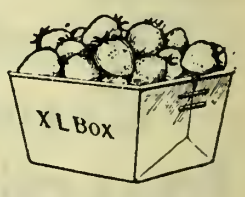
NEW SEEDLING STRAWBERRY
Six giant berries from one plant filled a quart, for which $10 was paid at our field meeting, June, 1901. Send for catalogue, free. Introducer,
T. C. KEVITT, Athenia, N. J

Hart Pioneer Nurseries
FORT SCOTT, KAN.
Wholesale Growers of Nursery Stock.

OH! YES!
They are coming: Letters and Orders by the hundreds; every post. Having seen my ad in January number of Western Fruit-Grower, they all want Wholesale Prices and the beautiful electro plate of Baldwin Cherry. They all know that ours is the Banner Corn County in Kansas, and our trees are the best.
BALDWIN, Nurseryman, Seneca, Kan.







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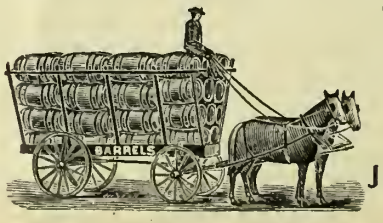

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Better Quality in Watermelons

We have referred to the work of H. A. Halbert, Coleman, Texas, in improving the quality of watermelons, and are glad this month to publish a few notes from Mr. Halbert on this subject. Perhaps we should say that Mr. Halbert has been so successful that W. A. Burpee, the great Philadelphia seedsman, has purchased one of his best varieties, and is now introducing it. Mr. Halbert says:

The watermelon or citrul (cucum's citrullus) is indigenous to the great Sahara desert and the warmer portions

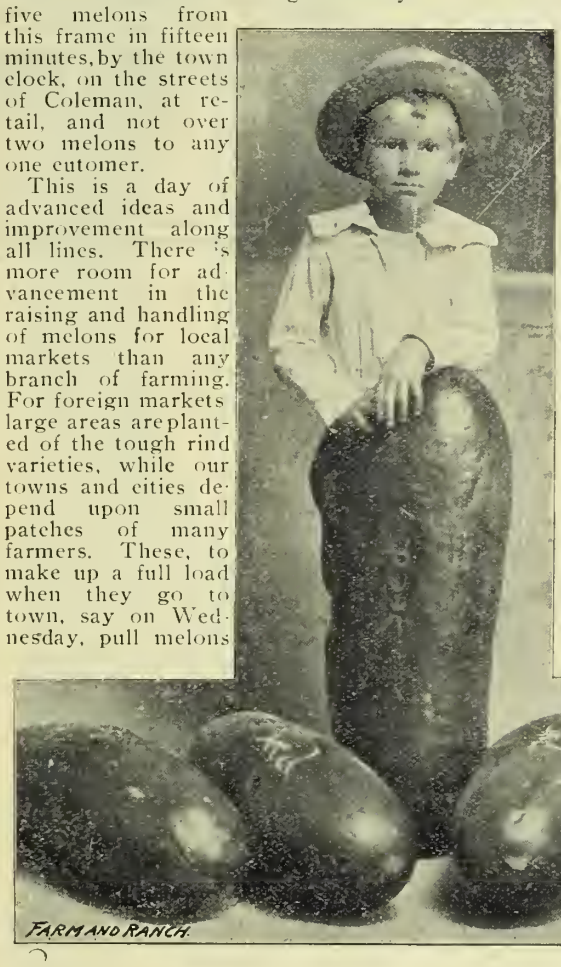
Mr. H. A. Halbert.

of the old world. Like many of our other best fruits and vegetables it has been immensely improved over its wild parentage. Yet the so-called citron or piemelon is a fair representation of the primitive state. This hardy species of the citrul family will grow voluntarily in fence corners, on the prairie and in old fields if unmolested by stock.

Being hardy and prolific, bees and insects scatter the pollen from its numerous flowers far and wide among the farmers melon patches, where it readily crosses and impresses its own worthlessness on good melons and ruins seed for another year's planting. It is the most worthless of all the family for human food and so deceptive in appearance that many of my readers can easily recall to mind some incident where he or some friend have been made to painfully bruise his fist or break his knife in the vain effort to open one for a watermelon.

Therefore, further removed you can get a watermelon from a piemelon the better it will be. Yet its tough rind is greatly desired to cover a sweet watermelon to enable one to haul or ship melons with safety to market. These tough rind varieties of melons are most commonly planted for both home use and distant markets. It is alright for foreign market where a real good melon is unknown. A watermelon can be compared to a pie—more brittle the crust better the pie. The flesh of a melon will partake of the toughness of the rind, hence more brittle the rind more tender the flesh. For seven years I have been working on this idea until I have perfected a new melon that originated with me, until it is farther removed from a pie melon than any known variety. With a sweet tender variety the management of our local markets can be greatly improved. It is wrong to endeavor to feed the Southern people, possessed as they are of the best melon land in the known world, on the same tough rind melons that are eaten in Chicago and New York.

But the class best able to purchase a good melon will not eat them. They look upon watermelons as being unhealthy and leave them largely for the laboring people to consume, those whose hardy constitution and frequent perspiration can throw off the evil effects. Under the present management of the local markets, these impressions are not far wrong, for, besides the inferior varieties, the melons are dumped off in stores and often held until they become stale. Again, they are carelessly selected in the patch and carelessly packed in common wagon beds and jolted over rough roads until they are bruised and the water cells broken, which causes them to sour and become unfit for food. A melon when just ripe, pulled from a live, vigorous vine, hauled without bruising, and eaten within the third day after being severed from the vine, is as safe and healthy as any fruit or vegetable. No melon should be pulled for market off a failing or dead vine. In conveying to market I use a cheap frame like the accompanying illustration, which any farmer can make of strips 1x4 inches, 12 to 14 feet long, at a cost not exceeding $2.50 to $3. This frame, with straw for them to lie on, does not bruise the melons by piling one on top of another. It shows them off nicely and facilitates sales. A customer can see the entire load at a glance and quickly makes choice. I have sold as high as sixty-five melons from this frame in fifteen minutes, by the town clock, on the streets of Coleman, at retail, and not over two melons to any one cutomer.



This is a day of advanced ideas and improvement along all lines. There is more room for advancement in the raising and handling of melons for local markets than any branch of farming. For foreign markets large areas are planted of the tough rind varieties, while our towns and cities depend upon small patches of many farmers. These, to make up a full load when they go to town, say on Wednesday, pull melons that should be left on the vines until the following Saturday, and carry melons held back that should have been marketed the previous Monday; hence, in the load you will find some melons in their prime, but more either too ripe or too green. Any melon raiser who will plant a large area for his home market of the best tender variety, so he can select every load with the melons just in their prime, and get them to market on above plans, will greatly increase the consumption among the people who will appreciate and are able to pay for a good watermelon.

The man who is so situated and has the nerve to strike out boldly in this new line of reform, and push it for all it is worth, surely has a good income awaiting him, and having taken the lead of the other melon raisers, can easily keep it for years.

Now a few words on insects and cultivation. My experience is that hand fighting is superior to any insecticide, and of all places the old adage of a "stitch in time" is most applicable along this line. Watch closely for the first pestiferous bugs caught and kill them with the hand. It is far better than to wait for several generations to breed and then apply your kerosene emulsion, etc. Fight the melon aphis likewise by destroying the first vines they act upon. I have for several years kept the aphis out of my patch by this method.

CULTIVATION.—Break the land extra deep. Plant wide apart for market, to get large melons, not less than 12 to 15 feet, in hills, and check. Plant with hoe, three seeds at a place, cover shallow not over 2 inches deep. Slightly hill or ridge in wet climate and on a level or in a depression if only partly seasonable or drouthy. Keep ground loose round young vines with hoe as they come up. Cultivate shallow. Run round with sweeps and then disk, or sweep out middles. Keep clean of weeds and grass, but don't turn vines after they begin to bloom, but do this rather than let them stay weedy.

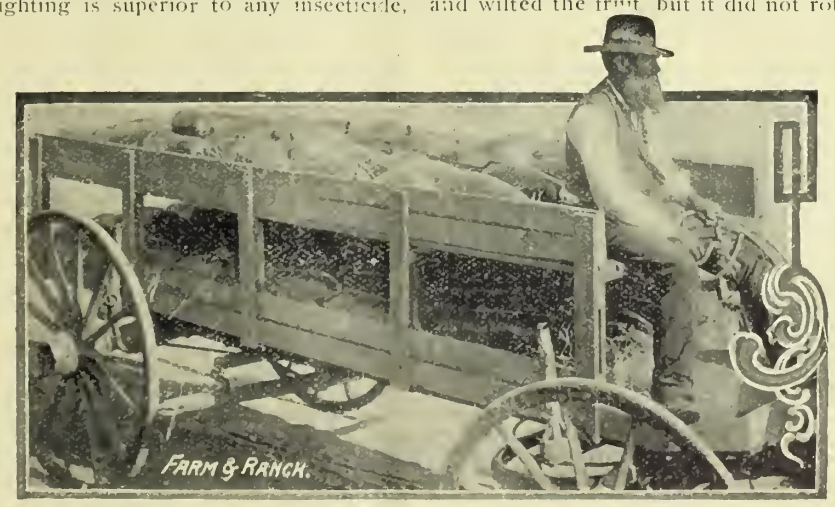
Plant as soon as danger of frost is over. Melon seed need heat, too much moisture rots seeds. Never fertilize, unless you desire size at expense of quality. Break deep, give distance, and keep clean, and you will get both size and quality.

H. A. HALBERT.

❦ ❦ ❦

I mail you two inferior specimens of one of my new seedlings that I hope is going to prove a valuable fruit of even more than local importance. Although growing and selling fruit myself, when I needed a winter sweet apple I had to buy a Talman in Omaha shipped in from Michigan or New York. A few years ago I began to work to remedy this matter by crossing the Talman with many well known and unknown apples, such as Ben Davis, Jonathan, Grimes, Oldenburg, the Wealthy, Baldwin, Patten's Greening and some seedlings of my own. The product of these crosses so far as fruited differ greatly. Ben Davis has nearly reproduced itself in two seedlings from Talman seed. Several are winter sweet apples of apparent value. The largest is a cross with a seedling hybrid of the cherry crab. This is a very sweet russet winter apple, 3½ to 4 inches in diameter.

The one I send is called Omaha for the want of a better name. It is from the seed of Talman, pollinated with Patten's Greening. The original tree is on its own root and is a stronger grower than Ben Davis. It has fruited for three years. The selected fruit runs from 3 to 3½ inches in diameter. This winter what I had left of this sort after December I put in the sweet potato house, where it is too warm and dry. The long continued warmth has injured the quality and wilted the fruit, but it did not rot. Even imperfect fruits, like one I send, have kept.



Talman is the only commercial sweet apple quoted in market reports throughout the United States. The Omaha, larger and brighter looking, resembles Talman close enough for a substitute, but is, I think, an improvement on Talman for any purpose that apples could be used.

THEO. WILLIAMS.

Benson, Neb.

The specimens which Mr. Williams sent were, as he said, imperfect, yet they had not rotted when kept in a warm temperature, having only wilted. They were good looking and were really good sweet apples. Those who know of Mr. Williams and his work will very much appreciate any fruit to which he gives a recommendation. He is a very modest man, and when he says anything is good it can be accepted as a fact that it is good. We hope that some day Mr. Williams will tell our readers more of the great work he is doing in developing a new pomology for the Middle West.

❦ ❦ ❦

READY-MADE SPRAY MIXTURES.

With the increase of syraying among farmers it was natural to suppose that some enterprising firm would prepare a list of ready made insecticides and fungicides for spraying purposes. This need has been met by the Rippley Hardware Co., Grafton, Ill., a firm which makes and handles all kinds of sprayers. This firm, knowing that many farmers would not go to the trouble to make their mixtures, or even if they desired to do so, could not get pure chemicals, decided to perfect mixtures which could be made in large quantities and sent out ready mixed at about a low as price as the farmer himself could mix them. The firm has a full line of insecticides and fungicides which need only to be mixed with water, and are ready for use. All kinds of sprayers are handled, also, as well as other things in which the farmer and fruit grower is interested. We hope every reader of the Western Fruit Grower will write at once for catalogue and full information concerning the different lines handled by this well known firm. Address Rippley Hardware Co., Grafton, Ill., and mention Western Fruit Grower when you write.

❦ ❦ ❦

HIGH PRAISE.

There is probably no better or more favorably known horticulturist in the West than R. M. Kellogg, of Three Oaks, Michigan, President of the State Horticultural Society. As a practical man, he is in great demand, as a lecturer and writer, consequently anything from his pen by way of endorsement deserves consideration. Our advertiser, the Spramotor Company, of Buffalo, N. Y., and London, Ont., have just received a letter from Mr. Kellogg, from which we are pleased to quote. Writing under date of February 13th, he says:

"Spramotor Company—Gentlemen: While attending the Western New York Horticultural meeting I examined your spraying apparatus in every detail, and while I own a first class pump, I find yours so nearly ideal in every way that I cannot resist the temptation to order one of your No. 2 style, with all parts brass and brass rods. Please ship as soon as convenient. I frankly say I have never seen so perfect an equipment for spraying.

Yours truly,
R. M. KELLOGG."

This is what one practical man thinks of the Spramotor as the most suitable device for spraying fruit trees, small fruits, vegetables, etc. Among the many devices offered for doing this work, it is economy to select the one which will give the longest as well as the most perfect service. The Spramotor is built in the most thorough manner, of the best materials, by practical people, who have made spraying in all its branches a life study.

The Spramotor Company have published a valuable treatise on spraying, consisting of 80 pages, which they will mail free to any one who writes for it. It gives the experience of many who are using the Spramotor and states the results obtained by its use. The claim is made that the Spramotor is the only machine which will positively stop the ravages on San Jose Scale. There is no doubt but that spraying is a necessity. In this matter promptness is of great importance. Although it may be weeks before a spraying apparatus will be necessary, it is prudent to begin now to write for catalogues in order that the decision may be wisely made. Address the Spramotor Company at either office, Buffalo, N. Y., or London, Ont., and mention this paper. The illustration at the head of this article shows the Spramotor at work in a practical test made by the Canadian Government against many competing machines on which they were given a very high award.

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Great Western
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is on top of the heap this season, and the people are scrambling for it. It is no wonder, when we come out and offer a hundred egg, three wall, kiln dried poplar case, 12 oz. cold rolled copper tank, hot water system, safety lamp, asbestos covered boiler, and all the latest improvements for a ten dollar hill, and send it on 40 Days Free Trial. Order one of these machines for comparison, and set it up along side of any incubator made at any higher price, and if it does not out-hatch the other machine, send it back to us without a bit of expense to you. This is the best incubator bargain ever offered, and you should take advantage of it at once. Remember the copper tank, three walls, hot water heating system. Write for free catalogue.
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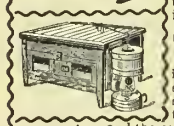
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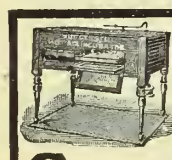
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as they come out. Then count the eggs, and you will see why so many people are using
Successful
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The healthy egg becomes the vigorous, husky, moneymaking hen. You will want our beautifully illustrated catalogue. Five different editions in five languages. English edition 4 cents; others free. It is a poultry Bible.
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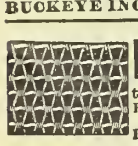
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1628 Farnam St., Omaha, Neb.

Poultry Department

Readers of the Western Fruit Grower will regret, we are sure, to learn of the illness of our poultry editor, M. W. P. Laird, Oil City, Pa. Mr. Laird has been confined to his bed for some weeks, suffering from rheumatism, and consequently is not able to prepare his usual matter.

The Best Breed of Poultry.

This question is discussed continually, and it seems there is no one best breed. The question is still a debatable one. One of the breeds which has been coming to the front within the last few years is the White Wyandotte. The wonderful popularity of this breed is indicated by the fact that at most of the poultry shows the number of birds of this breed which are exhibited exceeds those of any other breed, passing even the Barred Plymouth Rocks, which for so long were the leaders. The White Wyandotte is certainly a fine breed from any standpoint. They are not quite so heavy as the Barred Rocks, but have other points in which they are superior.

The White Wyandottes mature very early, are hardy and healthy in every way. They have low combs, yellow legs, and are very fine table fowls. Our experience with White Wyandottes as layers has been most satisfactory. Pullets began laying at about six and a half months and laid continually for three months before any of them became broody. Those hens which desired to set were very easily broken, it being necessary to confine them in a separate coop for about four days. Then they returned to laying.

Now, all the credit for the splendid egg records made by those hens does not belong to the breed. Part is due to the care they received. The chickens were hatched in an incubator, and half of the chicks were taken to another place and grown to maturity. When the pullets were old enough to lay, at the latter place, they had no good house, and did not begin to lay for six weeks after the first lot commenced, and even then did not lay nearly so many eggs. It was not the fault of the breed, but of the lack of proper conditions.

So don't blame the breed of poultry you are now keeping, until you have given them the care they should receive. Our poultry house is a small affair, about 12x16 feet, facing south, with three windows and door on that side. The run extends to the east, and a small door, sliding up and down, opens into the run. The roosts are about eighteen inches from the floor, and are notched to fit in grooves so that they can be easily removed. Beneath each roost, and attached to the uprights which support the latter, are troughs made of light lumber about eighteen inches wide at the top, to catch the droppings. These roosts and troughs, being easily removed are easily cleaned. Once a week the troughs are removed, the droppings emptied on the garden, and after the troughs are washed out they are replaced.

This house has a board floor, and the latter is covered with several inches of wheat straw. During the winter months, on cold days, the fowls were kept indoors, and their feed of wheat was scattered in the straw. This gave them all the exercise they needed. The straw kept the floor clean, and it was swept out when it became soiled, and the floor was then found as clean as could be, no droppings whatever having reached the floor.

The feed for these hens was a warm mash of scraps from the kitchen table, meat scraps, mixed with warm water, chop corn and bran. In the afternoon whole wheat was scattered in the straw. Chopped clover hay was mixed with the mash every other morning, and sometimes every morning. Oyster shell and mica grit were kept before the fowls at all times.

Now, this is only an amateur's poultry yard, eleven hens and two roosters being kept. But from this little flock all the eggs that could be used by a family of four were secured, and many were sold. Beginning to lay in January, these hens laid about six eggs a day when they were worth 40 cents a dozen, and a little later increased the number to eight and nine, averaging the latter up to the present time—April 1.

THE CYPHERS INCUBATOR
IS THE STANDARD HATCHER OF THE WORLD.
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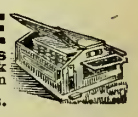
has enabled us after 16 years to make perfect The Reliable Incubators and Brooders. You ought to have our 20th Century Poultry Book in the house. It will cost you but 10 cents and will make you a master in the poultry business.

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We carry the largest stock of poultry remedies of any house in the world. Liebig's is at the head. The egg preserver and Roup Cure stand all tests put upon them, and should be at hand on every farm where there is poultry. Call upon us for anything needed for the hen's treatment from lice killing to cholera. We also carry a full line of poultry appliances, such as gape worm extractors, markers, rings, knives, staples, etc.
Ours is the only Wholesale Drug House selling direct to consumers at wholesale jobbing prices. Agents Wanted. Write to-day for our free illustrated "Live Stock, Poultry and Veterinary Book." HELLER CHEMICAL CO., Dept. 96 Chicago, Ill.

We believe a poultry house the size of ours will winter two dozen hens easily, and we shall keep this number next season. If more of our farmers, instead of trying to keep a lot of chickens, would keep only a few, and give them better attention, they would be better repaid.

AMATEUR.

Possibilities of Poultry.

Commercial Poultry of Chicago, that hustling poultry paper, recently sent its editor, Miller Purvis, to the packing plant of Swift and Company, St. Joseph, Mo., to investigate the large poultry business which is carried on by that concern. This company now handles thousands of fowls annually, and the call is for more. One effect of the entrance of the packing companies into the poultry field has been to maintain steady prices for poultry of all kinds. The price is not subject to violent fluctuation. The manager of the poultry plant says the company want more and better poultry. Pure bred stock is best to handle and brings higher prices. Trips are made regularly on all lines of railroad, and the business is growing continually. Along one short line of road the company bought in a few days 140,000 pounds of turkeys, bringing the farmers about $10,000.

Every reader of the Western Fruit Grower can add materially to his income by paying more attention to the poultry business. The fruit and poultry industries are closely connected, and the combination is a happy one.

Feeding Young Chicks.

Many people have asked on seeing the healthy growing, full feathered young chicks, what food we were using. The winter's experience, in which a variety of grains were used, indicates that it is not so much what the food is as how the food is supplied, provided there is plenty of starchy, albuminous and green matters. In nature small seeds, insects and grass furnish food for chickens. These are most abundant in the spring and summer months, and it is at this time that the chickens thrive. To secure the best results foods simulating both the composition and the mechanical character of these should be supplied. For instance, in the summer the tips of grasses are young and tender and easily broken by the chickens. For green stuff to be easily assimilable some plant should be supplied which may also be easily broken. We have found hanging a head of lettuce in the brooder by a string to exactly furnish the desired want, and be greedily, even crazily, eaten by the chickens. We have found that sifting the cracked corn, scraps and cracked wheat through sieves, so as to remove both the meal and larger pieces, gives favorable results. Millet seeds, broken rice, rolled oats and other things of this character were greedily eaten and well digested. For meat for the youngest chickens we have given the sterile eggs boiled hard and ground through a sausage machine. While it is preferable, if one has time, to chop the egg fine and mix with bran, or even feed it a little at a time to the chickens, we found it satisfactory to mix it with the bran until it was crumbly and feed it in bulk, a sufficient quantity being given for the number of chickens in the brooder. Mixing the eggs with cracker did not succeed with us as well for very young chicks, although it is fed by others apparently without harm. As the chickens grew older meat scraps were substituted. These were

Rose Comb Brown Leghorn Eggs—18 $1.00, 50 $2.25, 100 $4.00; Barred Rock Eggs, 18 $1.00; Bronze Turkey eggs, 11 $2.00. Rocks score to 93; Leghorns to 4, by Russell. John Tharp, Mt. Sterling, Iowa.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia....	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines...	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison.....	.75	1.00
Poultry Farmer, Des Moines.....	.50	.70

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St. Joseph, Mo.

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Peach and Apple Trees—Good assortment. Also full line of general nursery stock. Plattsburg Nurseries, Plattsburg, Mo.

equally sifted, added to the grain ration and strewn upon the floor of the brooder. Boiled liver and animal meal were also used, but there was very little difference in the gain of the different chickens when fed upon the animal meal, meat scraps or egg.

One mixture of seeds was made as follows at the suggestion of the poultryman:

For chicks from one day to six weeks old: Mix four parts cracked oats, one of fine cracked wheat, two of rolled oats, one-half of millet seed, one-half of broken rice, and two of fine scraps.

For the first two weeks we have added one pint of millet seed, leaving out scraps during the first week. Boiled eggs, three for each fifty chicks, have also been fed.

After six weeks and up to ten weeks feed the following mixture: Mix four parts cracked corn, two of fine cracked corn, one of rolled oats, one-half of millet, one-half of broken rice, one of grit and two of scraps.

For chicks kept in the colony system give for grain three parts wheat and four of cracked corn. Also give the following mash three times a week and daily after ten weeks: Mix one part ground corn, one of ground oats and one of brown shorts.

To feed the meat scraps we made the seed feed into a mash with boiling water, mixed the scraps with it and covered the mass until it was well steamed. This mash seems to hasten the growth of the chicks. While it seemed necessary to feed the youngest chicks rather oftener, those ten days old were fed mash in the morning, green food at noon, and dry seeds at night, allowing them to fill their crops. When fed oftener they seemed to get satiated and had no desire to eat.—Rhode Island Experiment Station.

A Farm Woman's Success.

At a recent farmers' institute at Avoca, N. Y., Mrs. Fillmore Billings, a farm woman, read the following paper on how she cared for her fowls and the profit she realized from them the past year:

"I have had some experience with poultry, as I have had the care of a flock of hens for the last twenty years with good success. We keep about 200 every year, raising and hatching them with hens. My way of caring for the chickens is this: I do not feed them anything until they are 24 or 36 hours old, and then feed them bread soaked in water for about a week. After that I bake cornmeal in a johnnycake, and soak that and feed five times a day until they are about 5 weeks old; then I feed wheat screenings or whole wheat, always giving them plenty of fresh water or sweet milk to drink. In caring for them in that way the loss from sickness is very small. Sometimes the crows or hawks will catch some of them.

"My way of caring for the hens is: In the winter I feed a warm feed every morning of bran with some meat feed mixed with it, either desiccated fish or boiled beef and bone, using seven parts of bran to one of the meat feed, mixed with hot water, and fed while warm. At noon feed corn or wheat, and if they need more feed, corn again at night; always have a box with crushed oyster shells where they can get them when they want them, and give them all the fresh water that they want. Two or three times a week I feed some vegetable food, cabbage or apples, if we have them, or potato parings. We keep our hens shut up in the winter, unless it is very warm. Don't forget that you must have a warm, dry place for them.

"In the summer they run where they please, with the exception of the garden. They are fed every day of the year all they will eat.

"Here is what we did with our hens last year: Jan. 1, 1901, we had 200 White Leghorn hens and eleven Plymouth Rocks for sitters. We sold 1,506 dozen of eggs, which brought $298.87. We have sold seventeen roosters for $7.30, which makes the sales amount to $306.17. The eggs used in the family is eighty-four dozen; calling them worth 18 cents a dozen makes them worth $15.12. You will see that the eggs sold brought almost 20 cents a dozen, only lacked a fraction of a cent. The chickens use for meat are fifty at 30 cents each; this is the lowest price that we have sold any for; it makes them worth $15. Jan. 1, 1902, we have our number of fowls that we had Jan. 1, 1901, and ninety-five extra pullets worth 50 cents each, which is $47.50; and twenty-four extra roosters worth 40 cents each, which is $9.60—which, by adding what we have sold and used and the extra fowls, is $393.93. The cost of feed for the year is $159.73—a profit of $233.66. If they had had more room they would have done better. I have had them do better than this. I shall continue in the poultry business as long as they do as well as they have the past year."

Feather World Flashes.

Never feed hens on filthy ground.

Never feed chickens soft feeds for a whole meal.

Ducks may take mash and soft feeds for a whole ration.

Never dump grain or other feed in piles before the hens.

No grit, no digestion. No digestion, no growth or health. No health, loss and death.

Can you get a supply of cracked oyster shells? They are the best thing you can furnish the fowls.

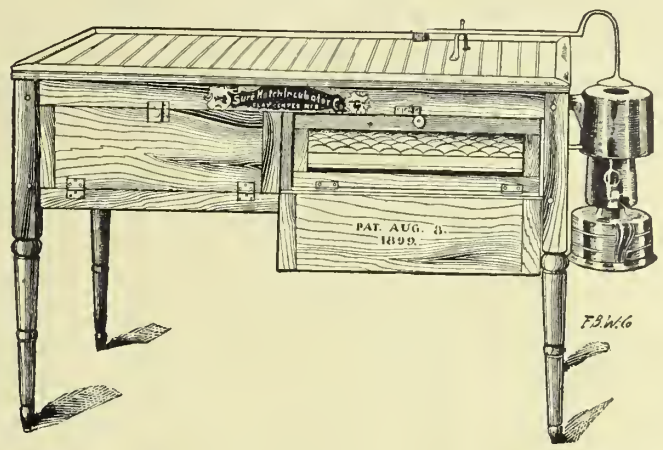
Beware of too much meat and green bone at once. Hens need some of these things, but only a little at a time. The moment they get too much of it they begin to suffer from torpid liver and that inclines them to all sorts of diseases.

Meat and bone, as fed, are highly concentrated foods and therefore they differ from the bugs and worms and insects which the fowls pick up on the range. On the range the fowls balance the concentrates with enough roughage to result in a wholesome, nourishing mixture.

It is claimed that cabbage fed to poultry will taint the eggs. I have never found this true, and my hens always have "enough cabbage to suit a Dutchman's taste."

Everything else will be in vain if you do not furnish in winter a thoroughly good supply of dust for the hens. Give them the dust and they will make the best possible use of it on the lice and other parasites.

THE
SURE HATCH
INCUBATOR



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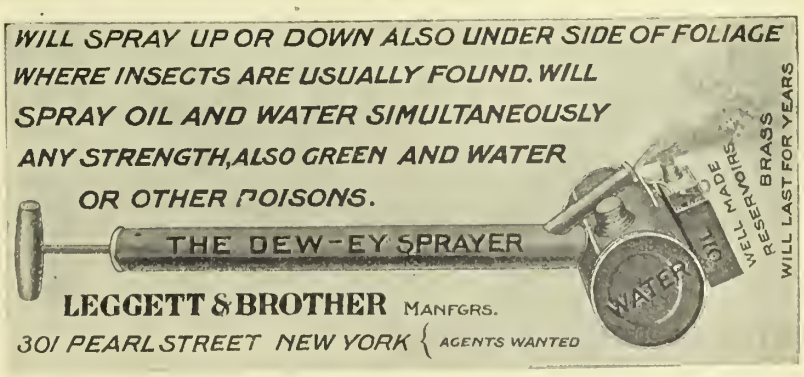

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Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT GROWER.
St. Joseph, Mo.

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DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6,000 trees,	7 rooms	5,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,300
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

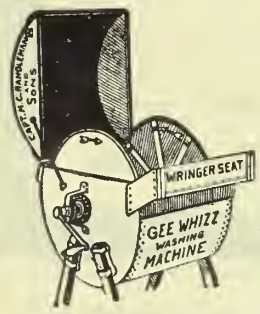
All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

Fruit and grain farm, 90 acres; fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

Send 10c silver and stamped envelope for recipe for POSITIVE CURE for rheumatism. Cures quickly; nothing to equal it; ingredients inexpensive; lasts for months. F. E. Hamel, Capitol Ave., North Lansing, Mich.

Fruit and Poultry Farm For Sale—80 acres, one mile from station; all necessary improvements; one-half acre of berries brought $60 last year; good for all fruits; also good for truck farming; four acres in grain; two fine springs; timber and grass; on public road; healthy. I live here. Come and see me while crop is growing or write. Price only $2,500. No better home for the money anywhere. C. C. Schupbach, Chadwick, Mo.



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Prospects for Fruit

This month we publish the first fruit reports from readers of the Western Fruit Grower for the year 1902. These reports show a condition of affairs which is not entirely satisfactory. Strawberries are very scarce, and the reports show that for the West, at least, the supply will not be over half that of a year ago. And it will be remembered that strawberries were not a full crop last year. The acreage of strawberries is less than that of a year ago, and the stand of plants poor.

Peaches will be much scarcer than a year ago. The crop of Michigan has been badly damaged as has been that of a number of Eastern states. Arkansas and the southern tier of counties in Missouri promise full crops of peaches, but north of the latter boundary there will be few peaches in Missouri or Kansas, and of course none to speak of north of those states in the Missouri Valley.

All other small fruits are in bad shape, raspberries and blackberries having been first injured by the drouth, and then by the severe cold weather early in the winter.

Cherries, pears and plums promise full crops, although damage is reported from some sections.

When it comes to apples the situation is much more satisfactory, for it is believed there will be a good crop of apples in most sections, except in case of some orchards which were neglected last season during the drouth, and in others which bore unusually large crops a year ago. On the whole, the apple situation is better than it has been for five years, and a good crop is expected, unless something destroys the crop before ripening time. It is early yet, of course, to make a good guess as to the apple crop, for so many things may ruin the crop, but with the absence of scab last season, and with the dry weather which checked growth in many sections and hastened the formation of fruit buds, a good crop of apples is expected.

Our summary of reports follows:

Gadsen, Ala.—Peaches here were injured by cold snap in March. It is believed the damage will reduce the crop one-third.

Decatur, Ala.—Prospects for fruit good. Strawberries are in fine condition, but with poor stand; crop about one-half. Rasberries and blackberries promise half a crop, dewberries full crop. Peach bloom is heavy and we look for full crop. Prospects are good for apples, but as this is an off year, we cannot expect over half a crop.—E. N. P., Jr.

Mammouth Springs, Ark.—Condition of apple trees extra fine, prospects for fruit were never better. Peaches promise best crop in ten years. Strawberry beds in poor condition, not over one-fourth of last year's crop. Raspberries and blackberries, 30 per cent crop; dewberries good. Pears, cherries and plums are all right. Weather extra fine and warm, with plenty of rain; lots of trees and plants set this spring, and all growing.—D. S. H.

Bentonville, Ark.—Apple trees in fair condition, prospect for good crop of most varieties. Peaches promise very good crop. Strawberries very poor, with less acreage than usual; not over 25 per cent of last year's crop. Blackberries and raspberries promise better. Other tree fruits promise well.—I. B. L.

Grand Junction, Colo.—Apples promise good crop, and peaches fair; few peach buds killed on higher ground where not irrigated. Strawberry beds are in very good condition, with larger acreage than a year ago; good crop promised. Trees and strawberries were irrigated late in the fall.—J. W. W.

Fort Valley, Ga.—While frosts caught many peach buds, it is not believed by conservative growers that enough were injured to prevent a full crop of fruit. Box factories allow growers until a certain date to cancel orders for baskets, crates, etc., and this time has now passed, with no orders being canceled. The crop will likely be heavy.

Quincy, Il.—Apple trees are in fair condition, with excellent prospects for fruit. Peaches are in bad shape, as are also strawberry beds; acreage of strawberries is much reduced, with prospects of 10 per cent of last year's crop. Small fruits of all kinds are in unsatisfactory condition. While spring moisture has been satisfactory, the subsoil is very dry, and we need at least ten inches of rainfall.—C. H. W.

Olney, Ill.—Apple trees in good condition, with prospects for fruit very good. Poor prospects for peaches, and strawberries are in bad shape.—J. F. J.

Neoga, Ill.—Apple trees in good condition, with prospects for good fruit crop. Peach buds are killed. Other tree fruits are full of buds. Few strawberries grown here commercially.—H. A. A.

Alton, Ill.—Apples in good shape, with promise of good crop. Peach buds all killed. Light stand of strawberry plants, acreage much less than usual. Other small fruits were all affected by last season's drouth. Pears are promising, with light bloom of plums and cherries.—E. A. R.

Hamilton, Ill.—Condition of apple trees fair, with good prospects for fruit. No peaches, and strawberries are in bad shape. Other small fruits are not promising, and other tree fruits only fair. Drouth of last season and this spring is telling on fruit.—H. D. B.

Batchtown, Ill.—Cold weather in December hurt apple trees; trees which failed last year promise good crop. Peaches were killed in December. Strawberries and other small fruits not grown commercially. Plums and cherries full of buds. Nursery stock was badly injured last December, Grimes and Willow Twig being worst hurt.—J. R. D.

Vernon, Ill.—Apple trees are in good condition, with prospects for fruit extra good. Peaches are all killed. Strawberries are in fair shape, with small acreage, and prospects for fruit better than a year ago. Other small fruits also promise good crop. Plums, cherries and pears promise well, and although the fruit situation is satisfactory.—E. W. J.

Savoy, Ill.—Apple trees are in good condition, and prospects for fruit fair. Peaches are in poor condition. Few strawberries grown here, but beds are in good condition. Cherries and pears are in poor condition; likewise blackberries and raspberries.—R. L. D.

Leavenworth, Kan.—Apples promise fair crop. Peaches killed. Strawberries in poor shape, with prospects of about one-fourth of last year's crop. Other small fruits promise medium crop. Whether the low temperatur of last December, which injured strawberries so badly, affected other fruits is a problem.—E. J. H.

Troy, Kan.—Apples are in good shape, with good prospects for crop. Peach buds killed. Strawberries are not in good shape, with not so good a crop as a year ago. Plums and cherries both promise well.—A. P.

Atchison, Kan.—Apple trees are in good shape, good prospect for fruit. No peaches. Drouth killed early strawberry plants, and there is a small acreage, with prospects of very small crop. Other small fruits in bad shape. All tree fruits, except peaches, promise well.—O. H. P.

Benton Harbor, Mich.—Peaches of the tender varieties have been badly damaged, and the crop will be short.

Watervliet, Mich.—Apple trees are in good condition, with fine prospects for fruit. Peaches promise not over 40 per cent of crop. Strawberries are in bad shape, and promise short crop. Dry weather of last season affected all berries.—R. H. S.

Kansas City, Mo.—Condition of apple trees, 75; prospects for crop, 80, except where trees were injured by drouth. Few peaches. Condition of strawberry beds, 30; acreage reduced one-half, with prospects of one-third crop. Blackberries and raspberries also promise very light crop. Pears, 75; cherries, 65. Drouth of last summer injured both tree and fruit buds.—L. A. Goodman, Secy.

Glasgow, Mo.—Peaches here are killed, other fruits fair, but small fruits cannot yield over half a crop at best.—H. S.

Oregon, Mo.—Apple trees are in good condition and promise full crop. No peaches. Strawberries were badly hurt by drouth, and will not yield over 60 per cent of crop. Other small fruits promise half a crop, and other tree fruits full crop.—N. F. M.

Columbia, Mo.—Apple trees in fair condition, with prospect for fruit extra good. Peach buds killed. Strawberry beds in poor shape, with small acreage and prospect for half of last season's crop. Other small fruits also badly damaged, but tree fruits are fair. Apple and peach wood was damaged somewhat by cold weather of last December.—D. A. R.

Mountain Grove, Mo.—Many apple orchards which did not produce a heavy crop last year promise a big crop this season, especially where orchards have been well cared for. Have just returned from Koshkonong, where peach growers expect the largest crop they have ever had. Trees are in full bloom and bloom is heavy. At West Plains and Olden most varieties, except Elberta, are not injured up to this time, and from West Plains south there will be a heavy peach crop.—J. T. S.

Lebanon, Mo.—Good prospects for apple crop, with trees in good condition. No peaches. Strawberries in fair condition.

Nauvoo, Ill.—Apple trees are in fine condition, with good prospects for fruit so far. No peaches here this year. Strawberries promise about 50 per cent of crop. Currants are mostly dead, blackberries and raspberries promise from one-fourth to one-half a crop. Plums and pears promise full crop. No rain of any consequence here since last June, and ground is terribly dry.—E. J. B.

Vincennes, Ind.—Apples promise good crop, with trees in good condition. Perhaps one-fourth to one-third crop of peaches on young trees. Strawberry beds are in fair condition, with prospects of perhaps half a crop. Raspberries and blackberries badly injured. Pears and cherries are all right.—H. M. S.

Des Moines, Iowa—Apples in good conditions. Peach wood discolored some, and not over 5 per cent of crop where they are grown. Strawberries have poor stand, but plants are in good condition. Red raspberries promise 65 per cent of crop, and blackcaps 75 per cent. American plums, 96 per cent of crop; cherries, 85 per cent. This report is for the state.—W. Greene, Secy.

Glenwood, Iowa—Apple trees are in good condition, with good prospects for fruit. No peaches. Strawberries in poor shape, with prospects of perhaps half a crop. Blackberries and raspberries are about as usual. Red raspberries were killed to ground where not covered. Grapes are in fair condition.—J. P. J.

Davenport, Iowa—Prospects for apples very good. Poor prospects for peaches. Strawberries were injured where not covered, with a reduced acreage. Dewberries are all right where covered. Cherries are all right. Injury to small fruits was caused by drouth.—N. K. F.

Holton, Kan.—Apples promise good crop in my own orchard, but where trees were not cultivated last season they have an unhealthy appearance. Do not look for good crop of apples generally in this section. No peaches. Strawberries for fruiting are in poor shape, perhaps 10 per cent of last year's crop. Other small fruits promise fair crops. Pears and cherries are all right, but plums in poor shape.—F. W. D.

Topeka, Kan.—Apple trees are in good shape, with prospects for fruit excellent. Peaches are in bad shape, very bad. Old strawberry beds in good shape, plants set in 1901 poor; smaller acreage than usual, with prospects for perhaps half last season's yield. Plums and cherries still promise well. There will be peaches in few counties in southern part of state.—W. H. Barnes, Secy.

Wichita, Kan.—Apple trees are in good shape, with excellent prospects for fruit. Peaches promise about half a crop, having been injured by December freeze. Strawberries will not be as good crop as a year ago; plants killed by drouth. Other small fruits very good. Generally, fruit promises good crop, barring late freezes or another drouth.—W. F. S.

Rosedale, Kan.—Apples promise good crop. No peaches. Strawberries are in poor shape, with half the acreage of a year ago, and prospects for about one-third of crop. Raspberries and blackberries promise about half cron. Pears and cherries both promise well. Spring has been ideal for planting, and more than usual has been done.—F. H.

Peaches and most small fruits killed by drouth and December freeze.—A. T. N.

Bogard, Mo.—Apple trees which were cultivated last season will have good bloom. Peaches are all killed, and strawberries promise very light crop. Raspberries are also short. Plums and cherries promise 80 per cent of crop.—J. P. C.

Marionville, Mo.—Condition of apple trees, 80; prospects for fruit, 80. Peaches promise 90 per cent of full crop. Condition of strawberry beds, 40, with prospects of half a crop. Other small fruits from one-fourth to three-fourths crop.—W. T. F.

Nichols, Mo.—Apple trees in good condition, with prospects of 90 per cent of crop. Strawberry plants are thin, with prospects for 40 per cent of last year's crop. Elberta peaches are mostly killed; fair crop of Salway and Champion.—J. W. T.

Richards, Mo.—Apple trees in good condition; prospects for Ben Davis and Jonathan light; Missouri pippin fairly full of buds, Winesap light. Peaches promise very light crop. Strawberries are in poor shape, as are also blackberries.—W. H. B.

Tecumseh, Neb.—Apple trees in good condition, with prospects for fruit good. Seedling peaches promise half crop; very few budded. Dry weather hurt strawberries, and crop not over 75 per cent of last year's yield. Cherries and plums are loaded with bloom buds. We have not had a good, soaking rain for six months and the drouth is telling on fruit and grain.—W. G. S.

DuBois, Neb.—Young apple trees are in good shape; fruit buds are healthy, but not numerous. Peaches are killed, or at best only a few live buds. Prospects for strawberries are very poor. Late cold weather killed some pear buds. Cherries promise half crop.—C. O. B.

Brownville, Neb.—Apples promise good crop. No peaches. Strawberries are in good condition so far.—R. W. F.

Favetteville, N. Y.—Apple trees in good condition, with prospects for fair crop. Strawberry beds are in fine condition, with 10 per cent increase in acreage. Plums and cherries promise fine crops, and currants are all right.—F. E. D.

Bradrick, Ohio—Apple trees are in splendid condition, and prospects for fruit are best we have ever had. Peaches promise half a crop. Strawberry beds are in fair condition, with about average acreage, and prospects for larger crop than ayear ago. Raspberries do not promise so well. Cherries and plums promise well. Neglected and unsprayed apple trees do not promise so well as those which were well cared for last year.—U. T. C.

Guthrie, Okla.—Apple trees are in good condition, with prospects for fruit very good. Peaches could not promise better. Strawberry beds are in fair shape; acreage is small, and prospects indicate half of last year's crop. Blackberries and raspberries promise well. Cherries, pears and apricots promise large yields. Altogether, there were never better prospects for fruits of all kinds, except strawberries, than we now have.—F. H.

Waynesboro, Pa.—While some peach buds have been killed, enough remain to yield a good crop of fruit.

Ogden, Utah.—Peaches in this section were almost all killed by a late cold snap, following two weeks of warm weather.

Winchester, Va.—Apple trees are in good condition, with good prospects for fruit. Peaches also promise well. Very few strawberries grown here, but beds are in good condition. We had a large crop of apples last year, and trees which bore then cannot be expected to yield well this season.—W. S. H.

Clarkston, Wash.—Elberta peaches were sewhat damaged, but cherries and apricots all right.

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Questions and Answers

A number of answers to queries were crowded out until next month.

G. R., Tobacco, Mont.—What is best to use to destroy the green aphis, and when is best time to spray?

Answer: The aphis are sucking insects, and therefore are not to be killed by poisons; they must be killed by an insecticide which kills by contact. Kerosene emulsion is the remedy most generally used. Kerosene emulsion is made as follows: Dissolve one-half pound of hard soap in one gallon of boiling soft water, then remove this from the fire and immediately add two gallons of kerosene. The vessel which is used for mixing should hold at least five gallons. Begin immediately to churn this mixture vigorously, and keep it up for ten minutes, at the expiration of which time you will have formed a complete emulsion. Now add to this nineteen gallons of water, stir thoroughly and spray. Some of the spray pump manufacturers now make pumps which mechanically mix pure kerosene and water, as they come from the nozzle. By using these any percentage of oil desired may be used, and no emulsion is necessary. As the aphis are killed by contact, spraying should be done at any time they appear, and of course the spray must come in touch with each insect to kill it.

G. W. T., Cockerell, Mo.—Wants to know what is the cause of apple trees turning black; looks like coal smoke had settled on them; also what to do for them.

Major Holsinger says the question is too indefinite. We should have more information to pass on his apple trees turning black. Can it be possible they are "Black Ben Davis!" Ha! ha!

J. M. B., Pope County, Ark.—I live in a cove with mountains all around me, on which fruits of all kinds seem to do well, the soil being very sandy. My farm is generally a deep clay, with some sand in places. I have one field of about 20 acres which is high and well drained, is a deep clay soil and will grow about 25 bushels of corn per acre; has been in cultivation about 40 years. Now, do you think the land would pay in either apples or peaches? I have about 500 trees that are bearing and am well pleased with results. I have planted quite a lot of apple seed that are coming up nicely, and would like to know when is the proper time to bud them; also how to bud, etc.? Also when is the best time to bud peach seedlings? I have never sprayed any yet. The worst enemy to my orchard seems to be "root rot," from which I have lost quite a number of trees. Is there any remedy for this, and what is the cause?

Answer by Major Holsinger: —Land that will grow 25 bushels of corn per acre is surely adapted to tree growing. I should not hesitate to plant either apples or peaches on such land. Your own conclusions should be sufficient, as you say you "have 500 trees in bearing and pleased with the result." There is nothing so convincing as to see the result of your own effort in the production of the luscious fruits. Have confidence; plant with the experience you have; you cannot fail. Apple seedlings should be taken up in the fall and cellared. Scions should be cut soon as the leaves fall. During the bad days of winter is the best time to graft them, using 3 inches of root to 6 inches of scion. If you have no expert and will inform me I will take pleasure in sending you some grafts already made, which you can imitate. It is a most simple operation and a pleasurable one. When the grafts are prepared they are tied in bundles of say 50 or 100 and placed in boxes in damp sawdust to callous. In spring, when ground is properly prepared, a line is stretched and they are dibbled in. Another method is in budding. When the seedlings are sufficiently large the bud is cut from the scion and inserted under the bark. This can be done at any time while the sap is flowing. When the bud has grown fast, the tree is cut about one-half inch above. The bud is now pushed forward, developing leaf and growing, forming the tree. The same treatment applies to the peach. Usually the proper time of budding the peach is in the autumn as long as the sap is active and the bark will raise easily. So you have root rot. You have my sympathy. "Is there a remedy?" I know of none and I know of no one who does. The professors are talking learnedly. They always do when there are no certain proofs. If there is a remedy it is as yet in the hereafter.

J. W. M., Galva, Ill.—(1) I know nothing about grafting or budding. Can you give me instructions so that I can do either successfully? (2) Is London purple as effective an insecticide as paris green?

Answer by Major Holsinger: (1) See my answer to J. M. Bradley in this issue. (2) London purple is not considered as effective as paris green, because of more adulteration. Pure arsenic is preferable to either, where used as recommended.

(It is impossible to give details of budding and grafting in this column. Too much space is required. "The Nursery Book," describing both processes as well as other nursery work, will be sent postpaid for $1.—Ed.)

W. E. W., Summerville, Pa.—Please inform me through your next issue how to select peach buds so as not to get fruit buds.

Answer by Major Holsinger: Select the late thrifty scions for your buds. Those buds that are single are leaf buds. Where three buds are found together the outer ones are bloom buds. It doesn't much matter in the selection, as the center or leaf bud will push out all the same.

C. H. R., Waynesboro, Pa.—We have just pulled up the peach trees from a rich and well producing orchard of 12 acres. The scale affected the trees and they are dying, although orchard was about 10 years old. We are thinking of replanting same in peach trees. We would like to know from your experience whether it is wise to plant same ground in same trees, especially if the ground is limed? Ground is naturally adapted to peach culture.

Answer: It is dangerous, at best, to replant this soil to peaches; enough insects may be left to infest the new planting. After a year or so, with the soil cultivated to other crops, there may be no danger.

D. A. R., Sidney, Iowa—I want to know about applying commercial fertilizer to strawberries. When should the fertilizer be applied, if its use is advisable, and how?

Answer by William S. Crawford: Your reader assk how to apply Armour's commercial fertilizers to strawberries, how much to use, and how to apply them to beds that are to fruit this year. It has almost invariably been our practice to apply commercial fertilizers after the plants are set by sprinkling them on the surface around the plants, within four or five inches of them, but not on them. We generally give from a spoonful to a small handful to each plant. One may apply from 400 to 500 pounds up to a ton to the acre in this way, but it is not advisable to apply over half a ton at a time. Another application may be made in September. This, of course, refers to newly set beds. Armour & Company make ten or a dozen—perhaps more—brands of fertilizers, varying from "all soluble" to bone meal. If one is using one of the acid treated brands that is readily soluble, the first rain after it is applied will take much of the fertilizing elements in solution down to the roots of the plants, and each subsequent rain will repeat the process. If the brand used is untreated, like bone meal or ground tankage, the fertilizer will have to decompose in or on the ground before it becomes available for plants. Such fertilizers should be worked in by cultivation or hoeing as soon as they are applied, so that the ammonia resulting from their decomposition may not escape into the air. Such fertilizers are slow acting in comparison with those that have been treated with acid, the slowness being very marked in the case of bone meal. Except where one desires to build up his land permanently, I do not consider bone meal an economical fertilizer to use, as it is generally understood that its action is extended over a period of five years unless it is ground very fine. If one uses ground takage, care must be taken not to use too much if it is put into the ground before the plants are set, as many growers do; for, if hot weather ensues, the decomposition will be rapid and some plants whose roots hapoen to be in contact with considerable of the rotting fertilizer will be "burnt" to death. When it is applied after planting and hoed in, there is practically no danger of this, as it does not get near enough the roots. Several years ago we lost a lot of plants by the use f too much ground tankage drilled in before planting. Then the season became so wet that regular cultivating was impossible and the fertilizer, being very nitrogenous, caused a growth of weeds so rank that the patch was swamped.

For use on a patch that will bear this year, I should advise the reader to get one of the brands of treated goods if possible, so as to get quick action. If the agent from whom he is buying can furnish him one rather rich in nitrogen, it will be well to get it, as it will stimulate the growth of foliage much as nitrate of soda would do. Scatter it on the surface at the rate of 500 pounds to the acre, among the plants, but not on the leaves, and hoe it in a little. The rain will do the rest if it comes; if it does not, the fertilizer will be of little avail. There is some danger of increasing the ravages of rust by using a nitrogenous fertilizer at this time on a bearing bed. In case the reader is troubled with rust, is not prepared to spray, or intends to keep the bed over another year, I should advise him to use a potash and phosphate fertilizer rather than one rich in nitrogen.

Answer also by fertilizer expert of German Kali Works: Strawberries are a crop which can be greatly influenced by the judicious use of plant food. The time and manner of applying the fertilizers, however, must receive special consideration. Plants can only absorb their nourishment in a liquid form; therefore opportunity should be allowed for the fertilizers to become thoroughly dissolved and disseminated. In order to facilitate this, an early application should be made. Furthermore, it is not wise to apply the fertilizers to strawberries while they are growing, for the reason that the plants and young rootlets may be injured when coming in contact with chemicals. It is always better to put on the fertilizers when the plants are dormant. If it becomes necessary, though, to make the application during the growing season, the proper plan is to apply the plant food carefully alongside of the rows and not allow it to come in contact with the plants. A suitable fertilizer for strawberries contains 8 per cent potash, 6 per cent phosphoric acid, and 3 per cent nitrogen. If too much nitrogen be applied it would cause a heavy growth of vines, and at the same time produce a soft berry without much flavor. The amount of fertilizer to be used per acre will depend on the condition of the soil and its previous treatment. A fair application would be from 800 to 1,000 pounds per acre. A little experimenting will indicate how much this application can be profitably extended.

A. B. L., Greenwood, La.—Where can I obtain the best budded or grafted pecan trees? Will a grafted tree live as long as a seedling? At what age, after planting, will a grafted or budded tree begin to bear? And at 12 years from planting, with good care, what would be the yield?

We will be pleased to have the American Plant & Seed Co., Nashville, Tenn., which deals in pecan trees, answer this query.

C. G. M., Bonham, Texas—Please enlighten me along the following line: I see many good authorities advocate clean cultivation for fruit trees, saying that in maturing its fruit it should not share strength and moisture of soil with any other plant life. On the other hand I read that clean cultivation will eventually burn out the soil in our dry western climate and render it lifeless and devoid of humus: that the ground needs shading. Now how we can practice clean cultivation and prevent this last named evil presents to me a very perplexing question and I am sure an article on the subject from you will enlighten many others besides myself who are puzzled by this apparently contradictory advice which we glean from every issue of your grand journal. I had thought to practice clean cultivation until just before the dry summer season set in and then plant to cowpeas, but in our climate (North Texas) that will throw fall apples and pears to mature together, which I understand is not desirable. A late planting of cowpeas would certainly not interfere with plums maturing, say in June and May, but in a dry season would it not interfere with the maturing of healthy fruit buds the ensuing year? The cowpea is unquestionably a grand thing for the orchard in many respects. It makes a great cover crop for our sun-baked soil, and it furnishes it with both humus and nitrogen, but how are we to use it and do justice to both principles of fruit growing. The fruit needs all the strength and moisture of the soil.

Answer by Major Holsinger: I think possibly you might throw as much light on the proposition as any. You seem to have some originality and can ask very perplexing questions. My ideas are favorable to clean cultivation. Why? Because I find I can secure the best results from cultivating thoroughly. Now when I advocate clean culture that does not imply that I do not grow some crop among my trees—a hoed crop, such as corn and potatoes. This while the trees are young and coming into bearing. Now that the orchard is in bearing a new treatment is necessary because of new conditions. Your trees will be so large that cultivation will be next to impossible. Just what to do next is for the individual to determine for himself. I prefer clover to weeds, and running the machine over it, allowing the grass to mulch the orchard; this is not only a mulch, but a fertilizer as well. As to the cowpea in the orchard, we are not so constituted here as to require their use. Our lands are sufficiently fertile that when weeds are allowed to grow they will grow to immense heights; have seen them grow clean through to top of our apple trees. If, as you say, "the cowpea is unquestionably a good thing * * * yet makes a good cover for our sun-baked soil, and it furnishes it with both humus and nitrogen," is it not barely possible that they return to the soil more than they take from it? There is always two sides to all questions. Horticulture is no exception. "You pay your money and you take your choice."

C. E. H., Bishop, Ill.—Has any experience proved conclusively whether a fruit plantation, say of pears on quince stock, in close order and kept pruned, has given satisfactory results when the soil was kept closely mown, but not cultivate? Or has the soil being cultivated always led to better results?

Answer by Major Holsinger: If I understand you correctly, you wish to know whether pear and quince do well in an uncultivated condition. If this is your meaning, I would answer affirmatively. I think the pear to do well should not be cultivated after they are once established or in bearing. Pears eighteen years planted—Kieffer, Leconte and Birkett—arein a stiff bluegrass sod and very little blight has shown on them. The same can be said of the quince. Location, soil and latitude have much to do with these questions. The conditions in Illinois may require different treatment than in Kansas. No rule will apply to all sections.

H. W. B. H., Winamac, Ind.—Last year I put out about 300 one-year apple sprouts. The most of them were said to be budded trees, and on account of the awful drouth the most of them died, especially down to the ground, and after the rains came a great many of them sprouted up from the top of the ground. Ought I dig these up and reset them? Or should I leave a green sprout where it is thus started?

Answer by Major Holsinger: If the tree throws up a strong shoot the chances are that is from the graft. Were you a skilled horticulturist you would have no trouble in telling whether it is from the graft or the root. I would suggest that you train the strongest shoot or sprout. Should any be rough looking, having thorns on them, you may be sure they are from the root and next spring replace with good two-year-old trees of same variety.

H. M. O. Haddam, Kan.—I send today by separate mail a sample Missouri Pippin root. I have a large number of young trees afflicted the same way. (1) What is it? (2) What shall I do, leave or tear up? (3) If I leave, won't the tree do poorly?

Answer by Prof. Howard: (1) The trouble with the root sent is what is known as crown gall, a fungus disease which nearly always attacks the trees at the crown, hence the name. This same disease is thought to attack the roots of raspberries and peach trees, and to spread from one fruit to another. Being of a contagious character, it naturally does the most damage in nurseries, where the trees are close together. (2) Owing to the fact that the variety affected is Missouri Pippin which is not a long-lived sort at best, I would recommend that they be left and several good crops may be secured from them. As the trees die out, replants should not be put in the same holes, as they would be very apt to contract the disease. Assuming that the trees are 25 or 30 feet apart each way, in a few years the orchard may be replanted by setting the new trees in the middles of the squares between the rows. Missouri Pippin naturally begins to bear quite young, but being diseased this tendency to early fruiting might be increased in this orchard and the trees bear heavy crops while they lasted, which, it is likely, would not be long, and they would probably be out of the way entirely before the last planting began to crowd them. If not, some of the old or the new trees should be cut out so as to leave the remaining ones plenty of room. The only treatment for crown gall is to remove the knots and paint over the wounds with a wash made of copperas, blue stone and lime. Where the trees are only slightly affected this might be a profitable course to pursue. Remove the soil down to the affected part (if this be on the main steam of the tree at the crown or a short distance below, but do not try to examine the side roots), administer the treatment as directed, and throw back the dirt. This would be an interesting experiment to make and report on later through the Western Fruit-Grower.

J. C. W., Howard, Kan.—I inclose couple of small limbs from five-year-old Gano trees. What causes the spots on same, and what will remove them?

Prof. Howard says the disease is apple canker, which was treated in this column in a recent issue.

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A LABOR-SAVING DEVICE.

Elsewhere in this issue will be found an advertisement of the Rollman Cherry Seeder, manufactured by the Rollman Mfg. Co., Mount Joy, Pa. This company advertises to send one of these seeders by mail or express prepaid for $1. It may seem to some that it is a cheap seeder which can be furnished at this price, but such is not the case. Last season the Western Fruit-Grower purchased one of these seeders, and it gave entire satisfaction in every way. It does its work rapidly, stabs the seed from the cherry clean, and wastes no juice, as the advertisers claim. This seeder was used by many persons last season, and all pronounced its work first-class. We take pleasure in recommending the Rollman seeder, and hope our readers will write for folder, if they wish further information, mentioning the Western Fruit-rGower.

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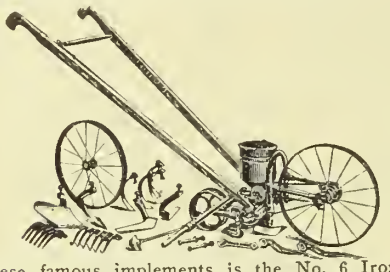
An Expert's Opinion of the Iron Age Farm and Garden Implements.

The idea of pleasure is not usually associated with farm and garden work done for a living, yet every worker knows the wide difference between working with good tools and poor ones. Here is a statement worth thinking about from a man worth listening to. He is T. Greiner, a practical gardener and well known writer on garden subjects, and he writes:

"I have used the 'Iron Age' Combined Double Wheel Hoe and Seed Drill for three seasons, and I can truly say that it has made the task of sowing seeds (which always falls upon me personally) a vertable pleasure. I do not know of a weak point in the machine; at present I use no other make of garden drill. I used to be very pronounced in favor of single tools, for the reason that in the combined tools one wore out two tools at a time and had to waste much time in making changes from Drill to Wheel Hoe and vice versa. The 'Iron Age' meets these objections quite successfully, the former fully, the latter to a great extent. When the Wheel Hoe is wanted, the Drill part is taken entirely off and the change made in a minimum of time."

The works, at Grenloch, N. J., where the Iron Age tools are made, have grown steadily since their beginning in 1836, until today they are shipping these tools to every part of the United States and supplying them for the export trade. One of the most generally useful of



these famous implements is the No. 6 Iron Age Combined Double and Single Wheel Hoe, Hill and Drill Seeder, here illustrated, with which nine or more different gardening operations can be performed. The operation of this tool is fully described and illustrated with accurate engravings in the Iron Age Book for 1902. This book describes all the Iron Age implements, Seed Drills, Wheel Hoes and Cultivators, Plows and Rakes, Horse Hoes and Cultivators, Harrows, R iding Cultivators, both fixed and pivot wheel, and the improved Robbins Potato Planter. It will be sent free on application to the Bateman Manufacturing Company, Box 506, Grenloch, N. J.

There is a certain something about the "free trial proposition that makes it attractive to even the person who is accustomed to buy for cash. Formerly the "free trial" idea was limited entirely to trial by sample and only such merchandise as could be sampled were subject to "free trial"; matters have been changed quite materially however, within the past few years, and now many things may be had on "free trial" terms. It remained for the Kalamazoo Carriage Harness Mfg. So., Station 63, Kalamazoo, Mich., to introduce the principle of "free trial" in the selling of the output of their large factories. They advertise in our paper to send any buggy, carriage, trap, surrey, harness, etc., which they make, to any purchaser on 30 days trial, and they lay just claim to being the "pioneers of the free trial plan." They not only give that length of time in which to test the vehicle, but they at the same time sell it to the buyer at manufacturers' prices. That they do these two things, and that they give the best of satisfaction is true beyond doubt, as we have never had a single complaint from our readers, many of whom must have embraced their offer.

Those of our readers who have not yet bought a vehicle or harness, will do well to write the Kalamazoo people requesting their 22nd annual catalogue. It is fully illustrated with each article offered and is almost sure to contain just what you aret looking for.

THE SPRAYING SEASON.

Time moves so rapidly that trees and vines will be in blossom and setting their fruit again almost before we are aware of it. This means that the spraying season will be upon us shortly and that now is the best time to decide what means shall be employed to save the berries, fruit, etc., the coming season. Nobody stops to consider the advisability of spraying in these times. It is not only now thought to be advisable hut absolutely necessary to successful fruit culture. This then leaves the small fruit grower, orchardist and others merely to the selection of the particular spraying outfit which he shall use. In this connection we wish to direct the attention of our readers to the line of spraying goods manufactured and regularly advertised in these columns by The Deming Co., of Salem, Ohio. In their bucket, knapsack, barrel and power sprayers they cover completely the entire line and the Deming goods leave nothing to be desired as to quality general utility, convenience and thorough and effective work. Their "Simplex," "Century" and "Peerless" barrel sprayers with special mechanical agitators and all brass working parts are idcal general purpose outfits. The Deming nozzles and spraying fixtures are of equal superiority. Write them for their illustrated catalogue and Spraying Calendar, free. Send ten cents in postage stamps for a copy of their valuable and comprehensive little book "Spraying for a Profit."

We have been favorably impressed with an ingenious machine for making woven wire fence in the field, the Duplex Automatic Steel Frame Ball Bearing Woven Wire Fence Machine, manufactured by Kitselman Brothers, of Muncie, Indiana, whose advertisement appears elsewhere in this paper. From the standpoint of fence making qualifications or economy to the owner of one of these machines it is surely unequaled. It is so simple in construction, any one can operate it. It allows its owner to make fence at actual cost of wire, also to utilize line wires and barbed wire of old fences if desired. It is automatic in every sense of the word. All the operator has to do is to set it up, turn the crank and the machine weaves the fence. That the manufacturers have boundless confidence in their invention is shown by their offer to send a machine out for six days trial. It will be to your interest to send for one of their catalogues, which are free, mentioning this paper.

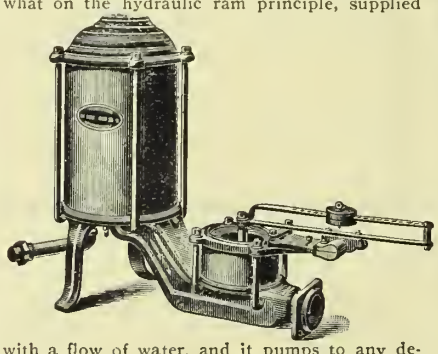
A LIBERAL OFFER—We are authorized by the manufacturer of the "Acme" Pulverizing Harrow, Clod Crusher and Leveler—Duane H. Nash, Milbington, New Jersey, and 110 W. Washington St., Chicago, (see advertisement on another page) to say that these Harrows will be sent to responsible farmers in the United States on trial to be returned at the expense of the manufacturer if not entirely satisfactory. The manufacturer is a reliable man to deal with and he delivers free on board cars at any of the following points: New York, Chicago; Minneapolis, Minn.; Kansas City, Mo.; Columbus, Ohio; Louisville, Ky., and purchasers pay freight only from the nearest of these distributing points. Inasmuch as Mr. Nash does not require any pay in advance the purchaser certainly runs no risk.

A VALUABLE DEVICE.

The home canner advertised in this issue by M. Foerg, Meridian, Miss., is one of the best things of the kind we have ever seen. One should be in every home, for it makes easy an otherwise tiresome task for the housewife, namely, canning fruit and vegetables. The canner made by Mr. Foerg is in two sizes--one for home use, the larger size for canning fruit on a more extensive scale. We have seen the canner advertised by Mr. Foerg, and know it is all right. Persons who have ushed it recommend it very highly. Mr. D. S. Helvern, Mammoth Springs, Ark., has one of the larger size, or farm canners, and has utilized much of his surplus produce by canning and selling to a good advantage. We hope our readers will see Mr. Foerg s ad and write him, mentioning the Western Fruit-Grower.

NEVER GETS TIRED.

This can be said of almost nothing physical or mechanical, for notwithstanding the fast that a machine cannot become physically tired, machines wear out and break down, which amounts to the same thing. The Rife Engine, however, cut of which we present herewith, is so constructed mechanically that it cannot get out of order or hreak down. It is only necessary to start it and it keeps going of its own accord. This may seem a strong statement, but any of our readers who care to write to the manufacturers for one of their catalogues, copy of which is on the editor's desk at this time, will understand the proposition more fully. The Rife Engine is constructed somewhat on the hydraulic ram principle, supplied



with a flow of water, and it pumps to any desired height. It operates equally as well with the muddy water of a stream and will deliver, without contamination, the pure water of the spring into the home, dairy, house, barn, yard, etc. Where the proper conditions exist it will be found one of the most useful and profitable investments that can be made. It is made in a variety of sizes and is adapted to all purposes. This may be just what you have been looking for to solve the problem of a constant supply of pure water. The Rife Engine Company are well and favorably known, having been established for many years, and our readers can deal with them in perfect confidence. Write to them today and they will gladly send catalogue and circulars free. Address Rife Engine Co., 126 Liberty St., New York City.

April is the approved month for strawberry planting. Among so many varieties care should be taken to select only such as are acknowledged the most prolific bearers, and looking to late as well as early bearing, flavor, size and shape of fruit, and selecting plants that will best withstand rust and disease. J. G. Harrison & Sons of Berlin, Maryland, whose advertisement is still running elsewhere in this paper, are prepared to furnish in any quantity, good healthy plants of the following excellent varieties: Kansas, Parsons, Margaret, Excelsior, Lady Thompson, Brandywine, Gandy, Tennessee, Crescent, Tuhbs, Paris King, Jessie and Marshall. Our readers can deal with confidence in this firm. It is reliable and can be depended on to send healthy stock and of the particular kinds ordered.

Cheaper than Cornstalks

Protect Your Trees with

Veneer Tree Protectors

A positive protection against rabbits, mice, sun-scald and barking by careless cultivation. Will last for years. Send for circulars.

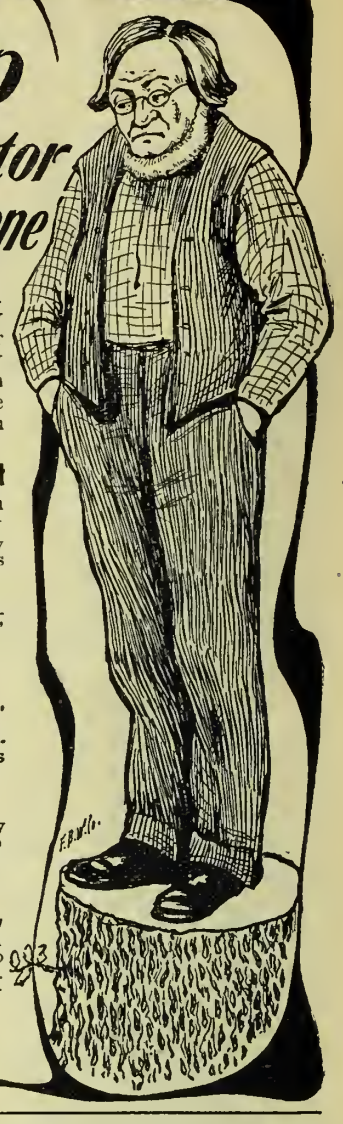
$1 per 100, $6 per 1,000

Hart Pioneer Nurseries
Fort Scott, Kan.
Dealers in Nursery Stock

850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. LEWIS ROESCH, Fredonia, N. Y.

Up a Stump
10 Miles to a Doctor
Watkins' Liniment all Gone



Enough to discourage anyone. Ill health, big doctor bills, no pleasure in life; blue and discouraged. What's the matter? Simply this. You can't work well, play well or sleep well until your body is in good healthy condition, and you can't keep the body in good healthy condition if you allow disease to once get a foot-hold. It is for this reason that a bottle of

Watkins' Vegetable Anodyne Liniment

is so valuable in the house. It is ready when the first sign of cold or chill is felt. A few drops then does what a doctor would charge many dollars to do later. We receive numberless letters like the following:

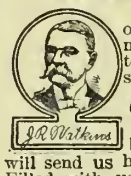
MANAWA, Wis., July 5, 1901.
I have used Watkins' Vegetable Anodyne Liniment for colds and cramps with very best results."
H. F. ORA.

The Best Remedy made for

Colds Coughs, Colic, Diarrhoea, Cholera Morbus, Dysentery, Indigestion, Cuts, Burns, Bruises, etc.

An especially strong point about Watkins' Liniment from the farmers' view-point, is that it is equally good for

MAN AND BEAST.



Our agent will furnish you with any of Watkins' Remedies, or if we have no agent in your neighborhood, write to us, and we will see that you are supplied.

GIFT FOR 1902.

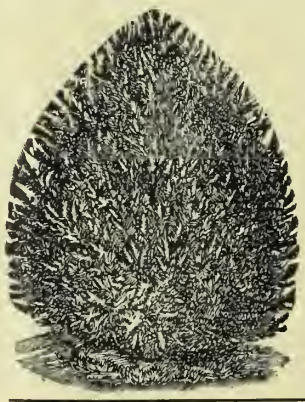
We offer a beautiful Cook Book and Home Doctor this year to anyone who will send us his name and address on a postal card. Filled with useful information on everything pertaining to the home. Write to-day. It is free.

THE J. R. WATKINS MEDICAL CO.,
86 Liberty St., WINONA, MINN., U. S. A.

THE PLANKINTON HOUSE, Milwaukee For thirty years the leadieg hotel of the Northwest, and today up-to-date in every particular.

Has always had and still maintains a pre-eminent reputation for character and liberality of its cusine and service.
American plan, $2.50 per day and upwards. Europeanplan, $1.00 per day and upwards.

Cable, Plankcomee. WILLIAM P. COMEE, Manager. Telephone, 187 Grand.



200 AMERICAN ARBOR VITAE, 1 to 1½ ft., $2.50, prepaid. ¾ to 1 ft., $2.00, prepaid. **$2.00**

At above prices we will ship either of the above 200 lots prepaid to any Express office in the U. S. Order as many lots as you want, but not less than one lot of 200. Each customer will be sent FREE a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreens s are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. A customer who had heretofore failed in tree planting says the pamphlet is worth "ten times its weight in gold." The Am. Arbor Vitae is undeniably the best all-around Evergreen for hedges, windbreaks, and screens. It lives on when others die. May be sheared to suit, tall or low, broad or narrow. ORDER RIGHT NOW, while the supply is large. Prepaid to any station. For $10 1,000 1 to 1½ ft. or 1,200 ¾ to 1 ft. prepaid to any address. Ask for our catalogue of hardy Evergreens etc.

EVERGREEN NURSERY COMPANY, Sturgeon Bay, Wisconsin

H. W. CAMPBELL.

To Make Crops Grow in Spite of Drouth.

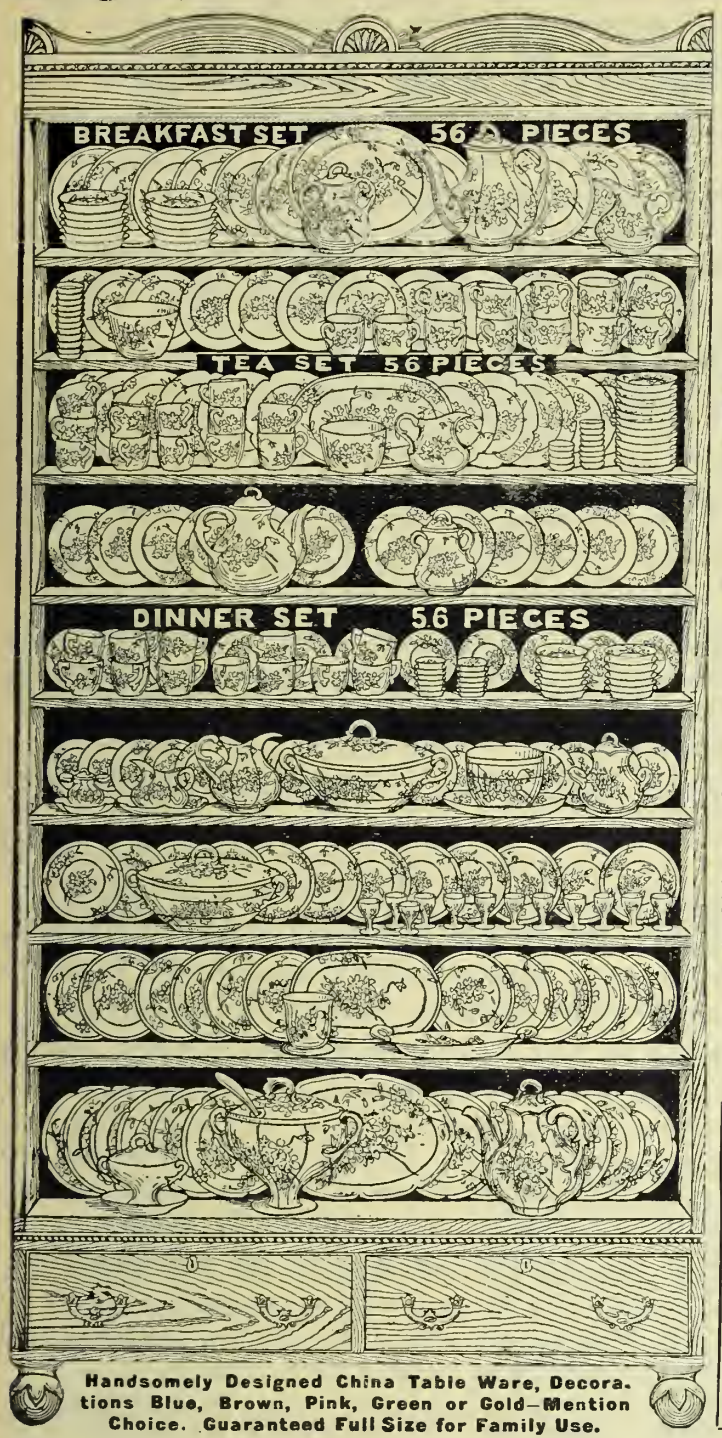
The man who has succeeded in solving this problem is H. W. Campbell. He is not a theorist, but has put his plan into practical operation. Last year he raised forty bushels of corn to the acre on his farm in Western Kansas, when his neighbors had a complete crop failure. Mr. Campbell is a regular contributor to

THE TWENTIETH CENTURY FARMER

This year it will publish articles by him which no farmer can afford to miss. Farmers who have been following his plan have been raising big crops every year in spite of drouth. Mr. Campbell has just published a manual of soil culture which fully explains his methods. This readable volume, together with six month's trial subscription to The Twentieth Century Farmer will be sent on receipt of fifty cents.

The Twentieth Century Farmer, 1628 Farnam St., Omaha, Neb.

Is your name in our roll of honor? If not, place upon the roll, and we would like to see don't you think it ought to be there? Five as large a roll next month as we publish this new subscribers sent in will entitle you to a month.



Handsomely Designed China Table Ware, Decorations Blue, Brown, Pink, Green or Gold—Mention Choice. Guaranteed Full Size for Family Use.

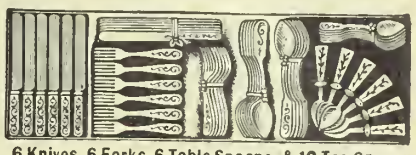
56 PIECES

BREAKFAST SETS,
DINNER SETS, - -
TEA SETS, - - - -

FREE!

Watch Warranted for 20 Yrs.

We give you a **56 PIECE BREAKFAST, DINNER,** or **TEA-SET**—full size for family use—**FREE OF COST.** Here is your opportunity. Do not miss it. This means exactly what it says. We give the Sets away **ABSOLUTELY** free. There is no fraud or humbug in this announcement. There is no juggling of words, no misrepresentation, no deception, no misunderstanding, no manipulation of words or phrases intended to deceive or befuddle you. All is plain, open, above board, and understandable. We will do what we say and give what we agree. When we state **WE GIVE A 56 PIECE SET,** we do not mean that we will send an OFFER or proposition, a plan used by others so often to entrap and deceive, but **WE GUARANTEE** to forward **the real genuine goods themselves.** Choice given of a Breakfast, Dinner, or Tea Set—each set consisting of 56 Pieces, beautifully decorated and artistically designed. In addition to the 56 Piece Sets, every person gets an elegant Watch warranted for 20 years, or 12 Silver Plated Tea Spoons, 6 Table Knives, 6 Table Forks, 6 Table Spoons, a pair of ladies' or gents' Kid-Gloves, or a box of one dozen handsome Stockings. (Gloves and Stockings for ladies or gents—all sizes and colors.)



6 Knives, 6 Forks, 6 Table Spoons, & 12 Tea Spoons

REASONS FOR LIBERALITY.

We manufacture the celebrated family and household remedy for men, women, and children—BLOOD GLOBULES, a specific for all blood diseases, nervous disorders, sluggish circulation, impaired vitality, rheumatism, female complaints, liver, kidney, and stomach troubles. We guarantee it to be the best remedy on earth for these diseases. We wish to introduce "BLOOD GLOBULES" in thousands of homes where it has never been used, and have set aside

$25,000 CASH TO BE SPENT

in giving away valuable and useful presents to those who are willing to help us.

THE ONLY CONDITION. MARK IT WELL.

On request we will send you 7 boxes of Blood Globules, all charges paid, which are to be sold at 25 cents per box, remit the $1.75 collected and we will present you with a 56 Piece Breakfast, Dinner, or Tea Set, and in addition we will immediately send you, all charges paid, a Watch, or 12 Silver-Plated Tea Spoons, 6 Table Knives, 6 Table Forks, 6 Table Spoons, a box of one dozen Stockings (ladies' or gents'), or a pair of ladies' or gents' Kid Gloves. Remember **YOU HAVE ONLY SEVEN BOXES OF BLOOD GLOBULES TO SELL no more.**

This is one of the most sensational strokes of advertising ever launched and we will carry it out, as our reputation depends upon the fulfillment of every promise made. In these days of active competition in business enterprises, it is necessary to do something startling to outstrip one's rivals, and that is just what we intend to do. Of course a large amount of cash and nerve are required to enable anyone to take the lead. We have both Nerve and Cash and are ready to give a share of the **CASH TO YOU** in presents. We guarantee satisfaction to all who do business with us.

Address: **BLOOD GLOBULE COMPANY, NEW YORK CITY, N. Y.**

NO MONEY.

Remember you need not pay a **Penny** in advance. Only send your full name and post-office address with nearest **Express** and **Freight Depot.** We box, pack, and deliver the Sets **FREE OF ALL EXPENSE** to Express or Freight Depot and we further guarantee against breakage or damage in any form.

WRITE YOUR ORDER ON THIS FORM. CUT IT OUT AND SEND IT TO

BLOOD GLOBULE CO., New York. Cut from April St. Joseph Western Fruit Grower.

PLEASE SEND ME 7 BOXES OF BLOOD GLOBULES, WHICH I WILL SELL AT 25 CENTS A BOX, AND I AGREE TO REMIT THE $1.75 WHEN SOLD. FORWARD ME THE PRESENTS SELECTED BELOW.

Name..... Town..... State.....

County..... Street and No.....

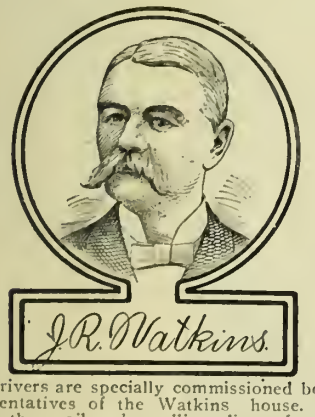
Express Office..... Freight Office.....

Do you want a Breakfast, Dinner, or Tea Set? ..... What additional Premium do you want? .....

If you do not wish to cut this paper then make a copy of this coupon and send us your written order.

WATKINS REMEDIES.

Our columns contain the advertisement of the J. R. Watkins Medical Company, a long established and favorably known medical house of Winona, Minn. This institution takes its name from its president, J. R. Watkins, who established the business in a small way about thirty-five years ago. It was incorporated in 1894. It has therefore had a long and prosperous career under the same management, who was the discoverer and compounder of all its remedies. The Watkins group of remedies have become household words in many parts of the country. In some sections the Watkins' wagons have been traversing the country year after year, calling upon regular patrons who would not think of being without Watwins remedies and extracts. People have no hesitancy in patronizing the Watkins wagons.



The drivers are specially commissioned bonded representatives of the Watkins house. Elsewhere the mail order selling direct from the laboratories to the consumer has been employed. By these means an immense business has been built up and this "old reliable" boasts the largest and best equipped house of its kind in the world.

The 1902 Watkins Almanac, Home Doctor and Cook Book, combined into one, is a most valuable book for preservation in any home. It is reliable in discussions of ailments, remedies, recipes, extracts, etc. It is much larger this year than ever before, and embraces many new and valuable features. Nothing untried or illy considered finds a place in it. Many of our readers are long time patrons of the house. Such as are not should at least write for the above book which is sent free, and correspond freely for anything desired in its line. Correspondence should be addressed to The J. R. Watkins Medical Co., 36 Liberty St., Winona, Minn.

COUNTRY LIFE IN AMERICA FOR APRIL.

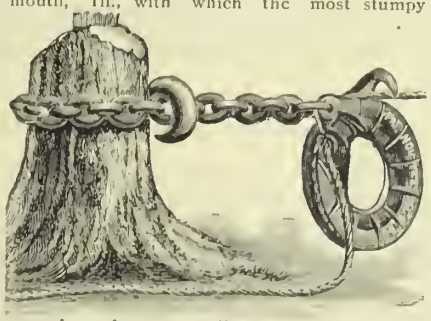
Country Life in America for April has caught the charm of the out-door world in spring. With large and superb illustrations, it has to do with everything from the trout streams and wild flowers of April to horses and dogs, gardenmaking, and the varied country pursuits of the month. A beautiful cover in colors is by Walter K. Stone, and, among the leading features, J. Horace McFarland contributes a suggestive article on the blooming of trees and shrubs; the editor, L. H Bailey, has written the first installment of a "Country Home-Making" series, telling where best to seek the land for large and small places; and "The Art of Formal Gardening," by J. M. Good, treats of landscape-architecture on the famous Sprague estate at Brookline, Mass.; while the editorial discussion, this month, relates to the popularity of Nature literature and photography, and their significance in the enjoyment of country life. Apropos of the camera-shot, "Hunting Rattlesnakes with a Camera," by W. H. Backus, furnishes some marvellous photographs of live "rattlers." Unusual pictures, too, are "The Cloudlands," as photographed by Otto von Bargen from the top of Mt. Tamalpais at sunrise; and then there are photographs of live grey foxes by Herbert K. Job, and "The Housekeeping of the Hummingbird" is a nature sketch by Julian Burroughs, quintly illustrated by the camera. The number is particularly valuable for its information and timely suggestion about gardening, floriculture, fruit-growing and kindred subjects; as well as for its "calender" and articles that chronicle the sports and pastimes of those who love the country. The end of the first volume is celebrated with the largest number yet published, and it certainly bespeaks the splendid success that the publishers claim.

We direct attention to the advertisement of the Marvin Smith Comapny of Chicago, whose advertisement again appears elsewhere in our columns. As many of our readers know, and as will appear by any advertisement of the Marvin Smith Company wherever found, this house dispenses entirely with agents and middlemen, and sells directly to the consumers to the consumer. That this effects a saving to the users of vehicles is apparent to any one who has made the experiment. Hardly any sort of buggy, surrey, phaeton, carriage, trap, spring or road wagon, sulkey or cart, but that is to be found within their catalogue. Including every degree of weight and every character of box, top, seat or tire, the list comprises everything in town or country. The catalogue

they issue is not a mere list, but every article is illustrated and described to the smallest detail, as to materials, character of work and finish and design, so that any one into whose hands the book may come, may form almost as good an idea of what he is buying as if he were present and made a personal examination. One other feature of dealing with a country customer is adopted by this house which gives him every safeguard he could require, namely, that of shipping goods without payment of money and allowing final inspection at the buyer's own railroad station, the firm taking goods back and paying freight both ways if not as represented or otherwise unsatisfactory. By dealing with these people, therefore, all agents' commissions are avoided, the bargaining reduced to a business exactitude, and a great variety of vehicles is presented to the purchaser from which to choose at his leisure. The catalogue can be secured by addressing the Marvin Smith Company at 55 to 59 N. Jefferson St., Chicago.

THE TIMBER DENTIST.

Some of our readers may not be aware of it, but there are advertisers using the columns of our paper who manufacture a device which well deserves the above name, for as a stump puller it is a great success. We refer to the Hawkeye Stump Puller, manufactured and sold by the Milne Manufacturing Company of Monmouth, Ill., with which the most stumpy



ground can be most easily cleared. The above cut shows the puller ready for operation. Many farmers in the West have pieces of land which are yielding nothing at the present time except the roughest kind of pasturage, but which could be made very fertile if properly cleared, and this is one of the best seasons of the year for doing the work. If any reader of this paper will write the above manufacturer they will receive by return mail full information about this device, its construction, cost, in fact, all that you will want to know about it. Address Milne Manufacturing Company, Monmouth, Ill., and mention this paper in writing.

$250.00 CASH REWARD

— U — — —
V I — — — — — —

There are ten letters, represented by ten dashes, omitted from the above words, and when the proper letters are supplied the completed words will describe the Picture and form a correct solution of the Riddle.

CAN you rightly guess what words are represented in the above picture? If you can you may win **A CASH REWARD.** This is a new puzzle, and if you are smart you can, with study, give a correct answer and win some Cash. **We do not want one cent of money when you answer this Study.** You have absolutely nothing to pay for a guess, so the cash you receive will be clear gain. Only one answer is allowed you, so **Try** and **Win.** This is a free contest and contains no element of chance and we positively guarantee to pay all patrons **Cash** for every correct solution. If your answer is correct you will hear from us promptly. Address, **Home Remedy Co., 79 Temple Building, Montreal, Canada.**

The Farm of the Future

Is to be found in the Arkansas Valley, Colorado. Perfect climate, rich soil.
No drouths. Crops absolutely certain. Large yields.
Fruits, cereals, alfalfa, sugar beets. Irrigation is the cause of success.
Write for descriptive literature. The proper way to go is via

The Santa Fe

Address, W. J. Black, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

WE WANT MEN TO LEARN THE BARBER TRADE.

Only **8 weeks** required; years of apprenticeship saved by our method of constant practice, expert instruction, etc. We have placed graduates in leading positions everywhere. Comparatively no expense. Catalogue mailed free by addressing nearest branch of the

MOLER SYSTEM BARBER COLLEGES
New York City. | Chicago, Ill. | San Francisco, Cal.
St. Louis, Mo. | Buffalo, N. Y. | Minneapolis, Minn.
Omaha, Neb.

Classes for Ladies in Hairdressing, Manicuring, Facial Massage and Chiropody also.

Black Ben Davis "King of the Orchard"

Entirely Different from Gano

Major Frank Holsinger writes us under date of Dec. 30, 1901: "I promised you yesterday to do you justice in the matter of **Black Ben** vs. **Gano.** As I told you, at first I thought them identical, but in a latter examination concluded differently. . . . . I feel positive now, with what evidence I have, that they are different. . . . "—Frank Holsinger.

If others who have been spreading the report that Black Ben Davis and Gano are the same, were as careful to **investigate** and as **honest to admit** their mistake as Maj. Holsinger many planters would be saved the disappointment of planting Gano with the idea of getting the same or as good an apple as Black Ben Davis. Gano is a good apple, but **Black Ben Davis is SUPERIOR in size, color and keeping qualities.**

Champion: Next to Black Ben Davis, the **most valuable** of all market apples—good grower, **young bearer,** good color—much better keeper than Ben Davis, and a **great drouth resister,** having stood last summer better than any other sort. **Delicious, Senator, Apple of Commerce, Jonathan** and **Grimes Golden** complete the list of **MARKET and QUALITY KINGS.** Our stock of 1 and 2-year old apple trees is the largest in the U. S., and **quality is unsurpassed.**

PEAR, Standard: Leading sorts, including Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others—**extra fine trees.**

PLUM: A full stock of all the BEST varieties, including Burbank's Climax, Sultan, Shiro, America. Gold is still **increasing** in popularity—we have most excellent reports from all over the U. S.; should be in **every** orchard.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, E'y Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce for spring; orders should be placed at once.

ELBERTA PEACH

We still have a fair supply of this most valuable of all peaches. Our stock of Elberta alone was more than 2,000,000 trees and by turning down orders from other nurseries we maintained our supply for planters' trade. We must admit that we have no surplus, and those who wish to plant the coming spring must place their orders early or be disappointed. The stock is strictly first-class in every particular.

PEACH, of all varieties, very **scarce** thruout the U. S., and nurserymen who have sold their small stocks and are unable to procure more, are advising planters to wait until next year. But we have a stock in keeping with Elberta and are **still prepared to supply planters** with all the standard varieties, notwithstanding the enormous trade of last fall from the Southern States. No need of waiting until next year to plant peach orchards—a year's time lost is never regained.

APRICOT: Sunrise and Superb, the only two varieties worth planting east of the Rocky Mountains. Also American Seedlings, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading sorts for home use and market—London Market Currant, Houghton Gooseberry and Cumberland Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

BUDDED LILACS: Superb Sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every door yard, should have them. **Perfectly hardy.**

ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

GRAPE---An Immense Stock of Superb Quality

For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines; for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivition, we are able to reduce prices materially.

Field of Niagara STARK BROS GRAPE NURSERIES in the famous Fredonia Grape District, Chautauqua Co., N. Y.

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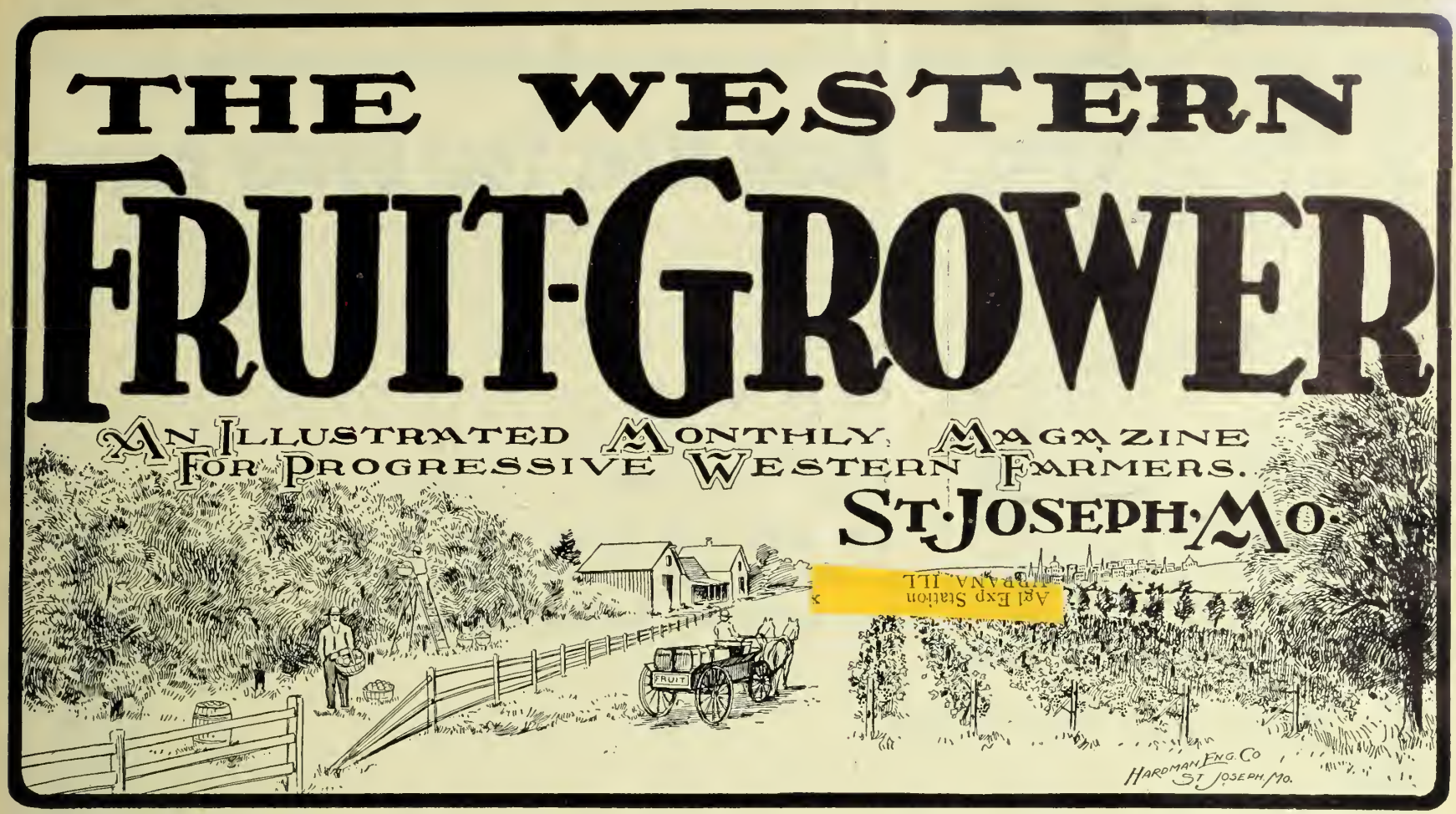
Volume Eleven MAY 1902 Number Five



Agl Exp Station
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Banding Apple Trees to Trap Larvae of the Codling Moth

WITHIN the past few months several articles have appeared in the Western Fruit-Grower concerning the use of bandages on apple trees to afford a hiding place for the larvae of the codling moth in which they change to pupae. This treatment is not intended to do away with spraying, but is to supplement this work, the object being to afford a place in which the larvae of the first brood may hide in changing their form, and when they are gathered in numbers in one place, they can be easily destroyed, thus lessening the second brood.

This plan has been practiced in many sections with success, and the following from a bulletin issued by the Negraska Experiment Station will be interesting, and the illustration shows how the bands are applied. This bulletin was published several years ago, having been prepared by Prof. F. W. Card, when he was in charge of horticultural work at the Nebraska Station.

FORD MAY 5, 1902

"On July 6, 1896, bands were placed around the branches of two different trees. On the 10th, four days afterward, these were removed and twenty-nine larvae and pupae found beneath them. Many larvae and pupae were also found beneath loose pieces of bark on the trees.

"On July 21st the bands were again removed and from two trees seventy-six larvae and pupae were found.

"They were removed a third time August 29th and only nine larvae, with no pupae, found beneath them. A still later examination made October 3d revealed only four larvae and no pupae.

"In 1897, bands of heavy wrapping paper were tacked about the trees on July 14th. Several methods of folding and applying them were tried. 1. Like a turn-down collar, endeavoring to make the upper part fit close to the tree, with the outer one slightly loose, in the hope that the larvae might enter between the folds of paper and that the bands could then be quickly gathered up and burned, destroying the larvae and pupae with them. 2. A single strip, with the top edge fitting close to the bark and the lower edge slightly raised from the bark, the paper forming a sort of funnel. 3. Like No. 2, but with the lower edge turned inside, making a fold. The bark above these papers was scraped smooth in order to prevent the larvae from stopping before finding them. On July 20th, six days later, they were removed. More larvae were found in the second and third forms. In all cases they were between the bark and the inner layer of paper and fastened to both, none being found in the folds of Nos. 1 and 3. (See illustration.)

"On July 30th, single bands of heavy building paper were placed around trees in a neighboring orchard, where no spraying had been done. At that time many larvae were just entering the pupa stage, though the great majority were less than a week old.

"On August 11th these papers were examined with the following result:

"1. Papers put on each branch, just above the head, three feet from the ground. Bark undisturbed. Two trees: —110 pupae under papers, 21 below the papers under the bark.

"2. Like No. 1, but with rough bark scraped away:—47 pupae under papers, 6 below.

"3. One paper close to the ground below the head. Bark scraped:—20 pupae under the paper, 2 above, in the fork.

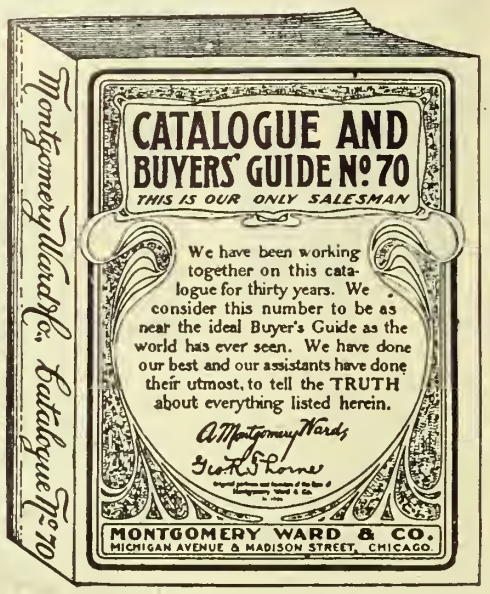
"4. One paper close to the ground, also papers above the head of each branch. Bark scraped:—83 pupae under the lower paper, 33 under the upper ones.

"5. Paper close to the ground. Bark scraped:—41 pupae under the paper, none outside.

"6. Paper close to the ground. Bark not scraped:—48 pupae under the paper, 8 outside.

"7. Paper close to the ground with a fold turned inward at the lower edge. Bark not scraped:—58 pupae under paper, 16 of these being in the fold; 7 outside of the paper.

"In pupating beneath these papers, the larvae did not attempt to hide under the bark, but attached their cocoons both to the bark and to the paper. It is impossible to say with certainty, but seems probable, that larvae which fall to the ground with the apple again find their way to the tree to pupate. The greater number of larvae found on the lower paper, when applied both to the trunk near the ground and to the larger branches, seems to favor this supposition, although it may be stated that since the bark is rougher below and would afford a better hiding place, they may pass the upper bands and take refuge beneath the lower one. When disturbed in their hiding places larvae frequently let themselves down on a silken thread and it may be that they sometimes leave the apple in this manner. To get the best results from the use of these bands the bark needs to



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be well scraped under the band as well as elsewhere, in order to remove other hiding places and make it easy to detect the larvae when the papers are removed.

"Summarizing the above results we get the following: Papers above the head, bark not scraped: 110 pupae under the papers, 21 outside; 85 per cent trapped. Papers above the head, bark scraped; 47 pupae under the paper, 6 below; 89 per cent trapped. Papers below the head, close to the ground, bark not scraped; 106 pupae under the paper, 15 outside; 88 per cent trapped. Papers below the head, bark scraped; 61 beneath the paper, 2 outside; 97 per cent trapped.

"It would seem from these results that the larvae prefer the rough bark near the ground, and most of them get next to the bark no matter how close the paper may be tacked to the tree, so that putting on the double fold with the hope of trapping them between the layers and thus quickly destroying them, cannot be depended upon.

"On August 19th the papers were again examined, and verified the results first obtained. On September 17 papers were put on this same orchard where no spraying had been done. These were examined September 20th, and again October 23d, with the result that many larvae were found, encased in thicker cocoons than those made during the summer, but none had entered the pupa stage. Others were examined and photographed November 18th and still showed the same conditions. Generallly a little depression was eaten away in the bark, and a corresponding one from the paper, the cocoon being cemented to both. When exposed to the light and heat the larvae soon began to travel about, apparently in search of another hiding place. Most of them were large, and many of them exhibited something of the pinkish color which appears before pupating earlier in the season. In several cases the papers were observed to be pierced with small holes looking as though birds had been attempting to get at the larvae beneath. In some cases these holes were observed to exactly correspond with the position of a cocoon beneath in which no larvae was to be found. This seems to indicate that the birds assist us in lessening the numbers of these insects which pass the winter safely. Judging from these observations, it seems fair to supose that bands put on September 1st, or thereabouts, and examined after all apples have been removed from the trees, would trap most of the larvae which pass the winter in the orchard. If, in addition, care is taken that none are allowed to escape from the places where the apples are stored during the winter, much can be done to prevent the injury of the following spring."

In preparing traps of this kind it must be remembered that the bands are not to prevent the larvae from ascending or descending the tree; they are simply to afford a place where the larvae will collect in great numbers, and then they can be easily destroyed. And of course it is useless to catch them unless the bands are examined occasionally and the larvae destroyed.

Spiritual vs. Material Gardening.

The beautiful exhibit of Missouri's horticultural display in the Cotton Palace at the Charleston Exposition elicits special attention and inspires to higher reasoning than the ordinary, for it presents to the minds eye a people who not only know how to appreciate nature's offerings, but manifest a gratitude therefor that is sublime.

A philosopher says "Work is worship." In the cultivation of these offerings, therefore, rests the gratitude, and points to a superior humanity. "As we sow we shall reap." Man's life path is bestrewn with flowers as they bloom in his own heart's garden, for the human soul becomes a bed of flowers, though acts of kindness and gratefulness for the same extended. Appreciation lays the foundation; effort beautifies the work of upbuilding, and sacrifice adds fragrance to the effects and recommends the gardener—whether he builds his own soil for a splendid effect or on that of the earth for a material effect.

Man himself is a flower from Eden—paridise grown from the seed of infinite love and sown broadcast over the universe to individualize itself as the image of God.

Love is the law that leads to perfection. Truth is the desire of every soul. All fact is truth, whether we feel it in ourselves or recognize it extraneously. The application of this truth is subject to the law of love as the judge—thoroughly applied, it leads to chaos, discontent, failures; rightly applied to harmony, contentment, prosperity.

There are no weeds in Eden; but human souls may grow them in their ignorance of nature's ruling. The effects are trials, sufferings, misfortunes. These are the weeds that uproot the flowers, destroying their sweetness.

But to the gardener who follows the law of love, life is a song—a carroling of hymns, touching the fibres of the body as though they were harp strings being played upon, and sensed as a symphony, engendering that delight we term happiness.

Thus Paradise is within. We enter it through the gateway of the heart. The flaming sword is a warning against planting decayed branches—assumption on false pride—that one inherits disappointment. The serpent is the tempter that leads love astray—deception, envy, ill feeling—and makes of the garden a desert.

But as "God is love," no soul is ever lost. There is redemption for all by a replanting—hope being the returning springtime to begin anew. Continued cultivation unfolds new fields—thus Paradise can never be lost. Brighter flowers bloom with added sweetness and beautify after every renewed effort.

The Missouri exhibit embodies such qualifications. It bespeaks of honest labor, sacrifice and love, and points to a splendid gardening in the hearts of the tillers, as well as to the magnificent effect with which they have blessed humanity. But by their fruits ye shall know them," and we judge the Missourians by what they have presented to our visual organs.

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Preparation and Management of Orchard Soils

IT is often advisable to view a subject from several standpoints, so I do not disguise the fact that I am a physician, engaged in the practice of medicine and the teaching of medical students. These observations, therefore, are by one whose playground in childhood was the old apple orchard, whose youth was spent on the farm, whose business is the practice of medicine, and whose recreation is horticulture.

Those versed in the science of teaching tell us that the best way to acquire knowledge is to add to the known the unknown. Some space is necessary in which to review that which is familiar in order to intelligently add that which is not so well known.

The first preparation for the planting of an orchard should be in the mind of the planter. Fruit is the product of environment. Nature's product is the wild crab apple; the luscious fruit is the result of man's ability to control the tree's surroundings.

All the requirements of the tree from the time it is planted and during its twenty to thirty years of life should be clearly in the mind of the planter before he plants his orchard. He should select for the orchard site that ground which has the largest number of natural favoring conditions for fruit, whether it is near the house or a mile away. Barbed wire and a bulldog will protect the fruit when he gets it, but fruit is what he plants for and that should have first consideration. When he plants the orchard he should make a vow that that ground has been set apart for the production of fruit and that he will do all in his power to assist the trees to do their best. The amount of fruit that he gets will depend, ninety-nine times out of a hundred, upon how faithfully he keeps his vow.

A planter should start out with as many natural favoring conditions as possible, such as climate, soil, air, drainage and those materials in the soil which can readily be converted into plant food. With these natural conditions present, his next problem is how to add to and control these conditions in such a manner as to give the best result. I have had an opportunity to meet a number of successful fruit growers from California to Maine and I have found one characteristic common among them all—and that was their intelligence. The great artist said the secret of his success was that he mixed his colors with brains. That can also be said of the successful fruit grower. He carries the magic fertilizer under his hat.

Soil is composed of the crust of the earth disintegrated by various agencies such as frost, water, wind, chemical and electrical energy, etc. One of the most important agencies in converting this disintegrated material into plant food is the action of bacteria.

Scientists tell that this earth was thrown from some fiery sun. When its surface had become sufficiently cooled, the first form of life that appeared was a bacterial cell which could draw its nourishment from the air and bare rock. By its activity and death, the rock was dissolved and conditions brought about which supported another form of bacterial life. This united action brought about conditions which permitted other bacterial activity until a soil appeared which supported animal and vegeable life.

The student of vital phenomena is impressed with the fact that the cell is the essential unit of all life; that all cells, whether bacterial, vegetable or animal, have the qualities of absorption, excretion and reproduction; that in the performance of these functions, cell activity is governed by environment, such as heat, light, food, air gases, moisture, etc.

Beginning with the earth bacteria, the vital phenomena is made up of a series of cell activities, one series supplying an essential element of food, or stimulation, for another series or kind of cells. In the animal food is taken into the alimentary canal, where it is acted upon by the cell products and digested in preparation for the groups of cells in the various organs. Much of this food is used over and over again. It is taken up by one organ, its atoms rearranged and excreted. In this form it is a necessary food for another organ or group of cells.

In plant life food also passes through various steps or series of cell activities. By noting the similarity of the life processes in plants and animals, we may be enabled to understand both better. The trees in the orchard are composed of cells essentially the same as those of our own bodies; their life and vigor are just as dependent on food, light and air as ours. In animals, there is a system of circulation by which the food and excretions of the various groups of cells in the organs are carried from one to another. In the tree there is a complete system of circulation. What the blood stream is to the animal, moisture is to the tree. As it passes through the soil it becomes impregnated with plant life. The moisture is taken up by the roots, carried to all parts of the tree and is evaporated from the leaves, leaving the plant food behind. The moisture condenses to fall in rain or snow and again performs the circle.

Food in the animal stomach is subjected to the products of cell activity, prepared and digested. A similar process goes on in the soil which covers the roots of the tree. In general, one is justified in saying that the welfare of the tree is just as dependent upon the digestive powers of its soil as is man upon the digestive qualities of his intestinal tract. This brings us to the consideration of those cells which take such an imoprtant part in the preparation of plant food, namely, soil bacteria.

Bacteria are often looked upon as hostile to man and are associated with many of the diseases which cause death. However, there are only a few of the many varieties that, under certain conditions, are able to attack him. They are the best friends man ever had. They gnaw the granite mountain and fill the valleys with plant food; they help grow his corn and make his wine. In fact they make his existence possible.

In the study of soil bacteria, we must understand that they are living entities and have in common with other forms of life, the power to absorb food, excrete used material and to reproduce their kind. Their activity is governed, within certain limits, by their surroundings. They are important factors in the digestion and preparation of plant food and they so fill the earth where there is a favorable environment, that it may be considered a living tissue.

The conditions which support bacterial life exist in a layer of soil of variable thickness. Fertility will depend very much on this thickness. If the bacterial area is one inch thick, a certain amount of plant food will result. If the area can be extended downward twelve or more inches, the amount of plant food will be greatly increased. Other things being equal, the fertility of the soil depends upon the thickness of the bacterial area.

There are many varieties of bacteria in the soil. Some reduce the mineral elements, other excrete ferments, while still others have the power of fixing gaseous elements into plant food. The study of these bacteria is very difficult, as their removal from the soil so changes their environment that it modifies their action. However, we know these bacteria are living things and respond accurately to those conditions which surround them. Those varieties prosper best which have the most favorable conditions. Bring about those conditions which are most favorable to the nitrogen fixing bacteria and nitrogenous plant food may be produced to excess. This is no doubt true of other plant foods. The farmer has learned how to gather the costly nitrogen by the use of legume and clover crops. Now he wishes to learn the favoring conditions of the bacteria which will unlock the treasures of phosphate and potash. It must be understood, however, that there must be a supply of raw material; all bacteria can do is to arrange the atoms into plant food molecules. Whatever appears in the final product comes from somewhere. The sun, earth, air, all contribute food and stimulation for their activity. They create nothing. The chemist tells us that fruit is composed of nitrogen, phosphate, potash, etc. This does not mean that we should get these products and dump them under our trees any more than it means that because pork is composed of fat, that the way to make pork is to get oil and feed it to our hogs. It is possible to ruin the digestion of a tree the same as that of the animal by the administration of highly concentrated food. The soil must have the materials from which the plant food may be produced. Even if these are all present, the orchard may be a failure because the moisture or plant food is not properly conserved.

Those of us who have watched bacteria grow on a solid medium in the laboratory have noted that they soon exhaust the food near them. This, with the presence of their excretions, soon suspends their activity. Stir them and renewed activity results. It is not unreasonable that the activity of the soil bacteria is thus increased by cultivation of the soil. It is true of all cells that their excretions are poisonous to them, although they may be food for other cells. It is, therefore, necessary to continued cell activity that there should be provision for the removal of cell products. This is done in the earth by the movement of moisture and gases. There can be no bacterial activity in a soil where there is no gas nor moisture circulation. Moisture travels through the earth principally by two movements: when it rains, snows or floods, the water passes downward until it becomes so distributed that the force of gravity is lost or overcome by capillary attraction; then it begins to travel back toward the surface. Without going into a description of capillary force too minutely, it may be said that when moisture toches the surface of a particle of earth, it spreads until it touches other particles resting against it. It then spreads over these and the moisture travels from particle to particle as, has been aptly said, a man goes from round to round in mountaing a ladder. Thus the soil bacteria, as they are fastened to the particles of earth, are as islands in a shallow stream with moisture continually flowing by them, bringing them food and taking away the products of their activity. Moisture is therefore essential to the bacteria in their preparation of plant food and is the vehicle which transmits it to the tissues of the tree. As the bacterial products are continuous, so the supply of moisture should be constant. The highest type of a fruit tree can only be produced in a soil that is continuously supplied during the entire growing season with the proper amount of moisture. To supply this the orchardist must take into consideration the lay of his land, the annual rainfall, loss by evaporation, and the texture of the soil. There is no factor of the tree's environment which it is often possible to influence favorably as its water supply.

In the eastern states there is a large rainfall on a hilly and rolling country. Much of this runs directly from the surface, but sufficient is usually taken up to keep the soil moist through the growing season. In a large portion of the western states the rainfall is less than half what it is in the east. Rain is mostly distributed through spring and autumn. During the hot summer, when it is most needed, it is the most limited. Before the fruiting period, the tree may not suffer seriously from the lack of moisture in the middle of the growing season, but when the fruiting time comes it is essential that there be a continual supply of moisture and nutrition during the growing season.

Prairie lands are mostly level and the texture of the soil is such that as soon as cultivation makes it permeable, it takes up moisture and retains it well. The physical condition of the western soil is the result of past treatment. For centuries it has been beaten down by the grazing herds that its vegetation supported. Its composition is such that it is capable of being packed very hard. Even where it is being cultivated, a few minutes of hard raining will pack the surface so that penetration is slow. In this kind of soil much can be done to assist water penetration. The use of the disk is of especial value. There is sufficient rainfall in much of the western country to produce fine fruit, but to do this the soil must be able to absorb it and pass it down to the sub-soil to make the reservoir for the season's supply of moisture. The rendering of the western soil and sub-soil permeable is of the greatest importance in the western orchard.

In central Kansas I examined the soil in a three-year-old orchard. It had been under cultivation five years. The soil was loose and permeable ten inches, about the depth of the cultivation. Subsoiling had been done where the trees were planted and the loose soil was increased just that

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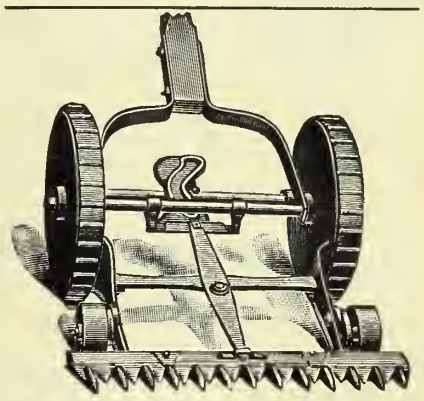

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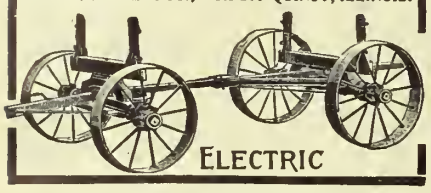

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depth. Below this line of cultivation the earth was as hard as if it had been under great pressure and was crystalized into cubes like coal. Two years later, after thorough cultivation and the use of the disk during the last season, this same soil was moist and permeable down more than three feet, as far as I examined.

The Department of Agriculture at Washington has pointed out the value of subsoiling in prairie lands, but if the orchard has already been planted, it must be done with care or the roots will be injured. The growing of plants with long tap roots is one of the most valuable methods of rendering the soil and sub-soil permeable Common red clover will send its roots down into clay soil twenty-two inches in fifteen months. These roots loosen the earth and after the crop has been turned under make little irrigating canals which carry the water down. Alfalfa will send its roots down ten to fifteen feet in three years. This is why during the past season of draught, it grew continuously, producing its three crops of hay. The roots loosened the soil and subsoil as they went down, and thus providede their moisture reservoir.

It has long been known that the site of an old forest is good ground for the planting of an orchard. For centuries the earth has been covered with a crown of foliage. The leaves have fallen year after year and formed a fertile mulch. The great tree roots have penetrated many feet. For many years after the removal of a forest the soil retains its ideal conditions for the movement of moisture and gases. If such an ideal soil can be obtained for the planting of an orchard, the efforts of the orchardists may be directed to maintaining them, but if this is impossible, when the orchard is planted, proper soil conditions must be provided to supply the demands of the trees as they mature. Deep root pasturage is absolutely essential in order that there may be sufficient bacterial area for the supply of plant food, and that the tree may be independent of the uncertain surface moisture conditions. It is often the case that fruit trees are planted in shallow soil which supports them for a few years, but as they get older they do not get the proper amount of plant food and become an easy prey to first one disease or another. Like people, trees do not resist disease well when poorly fed. Disease and pestilence follow famine. The orchardist whose trees are well fed has little trouble in controlling fungus pests. The man whose trees are poorly fed is almost sure to have little faith in spraying.

The loss of moisture by evaporation is injurious to an orchard even when there is ample rainfall. It is better for the excess to be carried away by under-drains than that it should be evaporated. As the moisture rises in the soil by capillary attraction, it becomes impregnated with plant food. When the water is evaporated from the surface of the ground, much of this plant food also passes into gaseous form and is lost. Every intelligent farmer knows of the loss of plant food to his manure pile by being exposed to evaporation, but he may not have thought of the value of the dust blanket in retaining the plant food on his hillsides.

The growing of an extra crop in an orchard, especially in the west, should be decided by the water supply. During the first few years a crop of corn between the trees may not be injurious, but a bushel of corn means gallons of water. At this time a crop of alfalfa may, by its beneficial effect on the soil be of much greater benefit to the orchard and compensate for the loss of plant food and moisture. The production of fruit is the object of an orchard and the early growing years may be used to the greatest advantage in soil-building and the laying up of plant food for future demands.

We have seen how the conservation of moisture is essential to meet the constant demands of the trees. The liberation of plant food in proper quantities to supply these demands is also an important problem. This can only be done by the orchardist appreciating these demands and the power of his soil to meet them. As a rule, the most economical source of plant food is to favor those conditions that reduce it from the earth itself. Special conditions, arising from soil exhaustion by many fruit crops, or unusual conditions of season, may require the use of commercial fertilizers. A study of the soil and a few carefully planned experiments will demonstrate to the orchardist the necessary materials to supply the proper food rations. In the spring, after the late frost period is passed, soluble plant food may be used to advantage. The soil bacteria have not yet become sufficiently active to liberate plant food and the tree needs it badly. The sap is filling the wood, the leaf and fruit buds are swelling and plant food is necessary to a vigorous growth.

A few degrees in temperature makes much difference in germ activity and the opening up of the ground warms it, permits air and gas circulation, and favors the liberation of plant food. Many of the drawbacks of a late spring may be overcome by the judicious use of plant food thoroughly distributed by cultivation. During the summer, with proper moisture and other conditions, cultivation may give the necessary plant food. As autumn approaches, the greatest activity of the tree is in the terminal branches. The protoplasm of the leaves is being withdrawn to assist in ripening the wood and buds for the winter's ordeal of frost. Too much moisture and food may now be a damage by extending the growing period too late, yet the soil conditions are the best for bacterial activity and much plant food is being liberated.

Plant food is a most unstable product. That which is liberated in the fall will lose much of its value before the next spring. There is one way to conserve this plant food: the last time the soil is cultivated in the autumn sow some crop that, in growing, will take the plant food of the soil and store it up so it can be ploughed under in the spring to disintegrate during the summer.

Each fruit grower can best select the cover crop according to the conditions of the soil. In Michigan, rye and crimson clover are favorites. The rye assists the clover in starting and makes sufficient growth to catch the leaves and snow. In the spring the clover starts almost before the snow is gone and by the time for the first cultivation it is nearly ready to blossom. It has been estimated that a crop of crimson clover possesses nitrogen, potash and phosphate at the market value of more than $20 per acre. The small amount of labor required to produce this, and the fact that it is in a condition to give its food up gradually in the soil as the trees need it, makes it of great value.

In conclusion, I will make a brief summary: Fruit is the end product of a series of cell activities in soil, root, tree and bud.

These activities are inseparably linked together. As a chain is only as strong as its weakest link, the lessening of any one of these series of activities will affect the final product.

Each one of these groups of cells is governed in its activity by environment, and in proportion to man's ability to favorably influence this he is able to influence the final product.

The first of this vital series is in the soil. By influencing the environment of various bacteria, the required plant food may often be produced.

Each orchard presents to its owner problems which no one can solve as well as himself. Principles he may learn from others, but he alone must make their intelligent application.

DR. W. K. JAQUES.
4316 Greenwood Avenue, Chicago.

(Paper read before the Illinois State Horticultural Society, Champaign, Ill., December 12, 1801.)

W. A. Crawford, Dyke, Va., writes: "I cannot possibly do without the Western knowledge on fruit growing. Nothing I have ever read equals it along that line. Long may it live to promulgate the roctrine of plenty of good fruit."

H. S. Allen, Villisca, Iowa, writes: I wish those spraying instructors who are working in Southern Missouri would come up this way with their car and spraying outfits. I would rejoice to see them spray both and all sides of a tree. We have been doing some spraying for the past five years, and we have never yet found a day when we could spray both sides of a tree to advantage."

We have received from Chas. C. Bell, in charge of Missouri's horticultural exhibit at Charleston, a package of rice seed. Mr. Bell writes that rice makes a very handhome plant for pot culture, and ladies who desire a free sample may secure same by sending their address on a postal card. Mr. Bell will also have some Sea Island cotton seed for sending out to those interested. Address Charles C. Bell, care Cotton Palace, Charleston, S. C.

I would like to say, for the benefit of Southern Kansas and Oklahoma farmers who are trying to grow apples and partially in answer to inquiries from other Western points in regard to apple tree borers, that if they will keep all apple trees in a thrifty, growing condition, they will not be troubled with borers. The borers that bother us worst are those which attact sunscalded trees only, and sunscald is the result of a partial or whole suspension of growth, which may result from various causes, but is chiefly due to neglect of culture. If anyone differs from me, I will try to make my position plainer.—J. W. Tetirick, Blackwell, Okla.

"The Western Fruit-Grower is the best paper of the kind I ever saw. Will send you some more new subscribers soon, for I don't see how anyone who grows fruit can afford to do without it."—H. C. Biltz, Vermont, Mo.

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The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia....	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines...	1.00	1.20
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St. Joseph, Mo.

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By Prof. Van Deman, fruit Editor Vick's Magazine, Rochester, N. Y. Sample & blank free.

Grape Growing in Oklahoma.

In previous articles I called your attention to the sled and picking boxes, and now we are going to need them in picking and handling our crop of grapes. Picking grapes is a simple thing, yet is is often made quite laborious through lack of knowledge and common reasoning.

Last season two men picked my crop of 20 acres, helped prepare them for market and did the bulk of the labor connected with the pressing of twenty-five hundred gallons of wine. How it was done may be of interest to the reader who is growing grapes. In the first place I had an abundance of picking boxes as described in my last article. The next important thing is the sled, 3x6 feet with runners, made of 4x6-inch material. A sled-load of of crates was taken to the vineyard and distributed along the ends of the rows, the team tied and the two pickers began work in earnest, each with a good, sharp knife. The picking crate is placed directly under the vine, and the young bearing shoots having been kept tied up in good order, the fruit all hangs between the lower and middle vines of the trellis. A wide-awake, lively picker will cut the stems with a swift movement of the right hand, catch the bunch of grapes with the left hand and carefully drop it into the crate. The crate is slid along on the ground from vine to vine, until it is level full, when it is placed under the shade of a heavy vine, an empty procured and the work goes merrily on, till a sled-load of some twenty crates are filled, when the team is driven through the vineyard, the fruit loaded and taken to a nook where the packers are at work removing all unripe and damaged berries, packing the choicest clusters into baskets or new, clean picking boxes, the inferior bunches being placed in separate receptacles and conveyed to the press-room over the wine cellar.

The local trade is supplied with the fruit packed in bright, clean picking crates, whilst that for shipment is packed in 8 pound baskets.

My reason for using a sled instead of a wagon is because of greater convenience in passing through the vineyard, and in loading and unloading the fruit. I would not try to operate a fruit farm without a good sled· it is a handy thing in many ways and costs but a trifle.

The unripe fruit is sold for jelly stock at 2 cents per pound, the damaged berries are put in with the pomace that comes from the wine-press, and are taken to the distillery for brandy; thus the entire crop is utilized, nothing going to waste and each separate class of fruit is brought up to a high standard. As fast as the fruit is packed it is removed to a cool cellar and kept there until a load is accumulated, when it is promptly taken to market.

There seems to be a great desire on the part of most growers to get grapes on the market early, even to the extent that they'll pick them before they are ripe. This is, to my notion, a grand mistake. There are few things as unpalatable as half-ripe grapes, and as they never ripen after picking, as most fruits do, they should remain on the vines until fully ripe and sweet. Grapes are scarcer near the close of the season than they are at the beginning and always bring a better price.

The marketing of the crop is perhaps the most important part of the work connected with grape-growing. If the right tactics are used, that part of the work is made comparatively easy. The grower must first establish a reputation for furnishing nothing but ful measure of the finest quality, and for furnishing them promptly. It may sound a litle egotistical, but last year I marketed almost a thousand dollars worth of grapes, and five dollars would cover the value of all that was taken to market before being contracted for. Each season I have my regular city dealer trade to supply, I agreeing to keep stock on hand all the time, and yet not overstock them so there would be a waste. Those dealers know full well that when I deliver a crate of grapes to their place of business that it contains nothing but choice fruit in large clusters; no green or damaged berries, and that they must pay my full price, which is always reasonable. My outside trade is supplied by express, with an understanding with the dealer that I am to ship a certain number of baskets daily at a stated price. I have my list of customers and when the shipping season arrives I write each one, quoting variety and price and ask for orders. They all know that when the grapes arrive the baskets will be full of choice fruit and that they will be properly packed, which is a matter of considerable importance to them. I have seen grapes packed for shipping that I would be ashamed to have bear my label; baskets not full and all stems showing. It requires but little extra labor and just a few more grapes to put them up properly, and I think my own experience will warrant the assertion that a shipper who will persist in haphazard methods should receive no pay for his fruit. It is no trouble to sell good fruit well and properly handled at a good price, and the dealer is always ready for the shipment at a good price. On the other hand he seriously questions the acceptance of a second consignment of inferior fruit, half packed and mashed to an unrecognizable mass.

I am often asked by growers, "Where do you sell your grapes?" The answer is, "to anybody who orders them and pays my price." My reputation is favorably established with many dealers east, west, north and south. Those to whom I have shipped in the past know exactly what class of stock they are going to get when they send their order. They also know that I will charge them the same price I am getting generally for the same class of goods. So, I say, grow first-class stuff, handle it properly, establish a reputation for good goods and prompt, honorable dealing, and the market will come to you. You will not be bothered about looking it up. Label the packages with neat, attractive labels, and the consumer will soon learn to know the contents from top to bottom and will guage his purchases in proportion to your effort to please. Use nothing but bright, clean packages for your market fruit. Let them be neat also. In putting the handles on the grape baskets see that they are put on straight and securely fastened. Put plenty of fasteners on the lid to keep it in position and reasonably secure from the lifting temptation of the express boys.

I am sometimes classed in the great list of cranks, because of my determination to have all my fruit packages "just so," before leaving the farm. The real value of this particular point, however, can scarcely be appreciated by the uninitiated.

Mr. Thornton, editor of the Oklahoma Farm Journal, takes delight in telling a little incident that happened under the his observation some two or three years ago. It may not be inappropriate to relate it right here. "He and I were standing on the edge of the walk in Oklahoma City, when a fruit-grower of some prominence drove up with a few open baskets of Catawba grapes. He was seeking some information, chief of which was the price I was getting for the same kind of grapes. He was selling them at retail and I told him he ought to get 40 cents per basket for them. He insisted that he could not do it. While we were talking I had walked to the rear of his wagon and re-adjusted the bunches on top of several of his baskets. A passerby stopped and looked at the grapes and inquired the price. I took the liberty to quote him 40 cents per basket. He promptly replied, 'let me have the basket you have in your hand'. I turned the money over to the cashier and called his attention to the fact that if he would devote to the proper packing of his grapes one-half the time he lost in a vain endeavor to find buyers, he would have both more time and more money."

With this somewhat rambling article I close my series on the grape. I trust they have been the means of correcting errors heretofore occuring with some growers. I do not insist that the methods I have described are the "whole thing," for there are others; but I do insist that the work in general as I have tried to outline it, is in keeping with the methods employed by the majority of American grape-growers of today, where that is made an important industry.

Oklahoma. C. A. McNABB.

Going to Milwaukee?

The American Association of Nurmen who will attend will pass through Chicago, they should certainly avail themselves of the opportunity to take a trip across the lake from the latter city to Milwaukee. The Goodrich Line of steamers run first-class boats between these cities daily, and the trip is certainly a delightful one. One can spend the day in Chicago, spend a delightful evening on board the boat, and in the morning will be at the destination. Certainly all who can possibly do should take this trip, avoiding all the inconveniences of railway trips between the two cities.

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O. D. Howe, Table Rock, Neb., gives it as his opinion that it is a very strong mixture that will kill canker worms after they become full grown. He has tried it and has never succeeded in killing them after they attain any size. Neither liquid or dust sprays seems to be effective.

F. E. Lawrence, Hickory Corners, Mich., writes that the peach buds were nearly all killed in that section by the freeze of last December. Mr. Lawrence wants to know what fertilizers should be used for peach trees where the wood growth is good. Wood ashes, or any fertilizer rich in potash, would perhaps suit his needs best.

St. Joseph Horticultural Society.

The April meeting of the St. Joseph Horticultural Society was one of the best for a long time. The program committee submitted program for the rest of the year, and the three numbers scheduled for that meeting were presented.

L. C. Wilson read a paper on "Canteloupe Growing," which we publish in full herewith. R. G. Rau read a paper on "What Flowers Shall We Plant This Spring." Mr. Rau made a plea for more flowers about the farm home, and recommended flowers that should be more generally grown, such as hardy phlox, peonies, and other flowers of that class, as well as cannas, petunias, and annuals; of roses, the teas give most blooms, but must be protected in winter.

W. D. Maxwell talked on "How to Maintain Fertility of Our Apple Orchards," and paid tribute to the article on this subject in April issue of Western Fruit-Grower. Mr. Maxwell said he would not plant apple trees in poor soil, but would select good land, with clay subsoil, which will hold water well. When trees are young he believes garden truck, such as potatoes, tomatoes, etc., is best to grow between the trees. Of course, in large orchards, removed from market, this is impracticable. Generally speaking, Mr. Maxwell said he would not plant in an apple orchard anything the crop of which was to be removed, such as wheat, rye, and other grains. If these crops are planted and turned under, they may be all right.

When trees get eight or ten years old, he believes red clover is the best crop to grow. He cuts the first crop and lets it lie on the ground; the second crop is left to grow and fall over. The mulch thus formed helps to store water and keep soil cool and moist. Next spring would run a disc harrow through the orchard, loosening up the soil, and Mr. Maxwell does not believe this will keep the clover from making a stand. He would not use a plow in the orchard, but only the disc harrow. This treatment will maintain the fertility of the soil which was good in the first place.

D. A. Turner likes cow peas in the orchard better than clover. He does not like the disc harrow either unless it is followed by a smoothing harrow, as the disc ridges the soil too much.

At the May meeting of the society, which will be held Saturday, May 31, the following papers will be read and discussed: "Shall We Grow a Clover Crop in Our Orchards This Season? If So, What?" John Brazelton, Jr., Wathena, Kan.; "Business End of the Berry Patch," R. E. Lee Utz; "Will It Pay to Water Strawberries?" Chris. Ruegsegger.

Mr. Wilson's paper on canteloupe culture follows:

"The first I consider is soil; would select rather thin land, somewhat sandy, not that the vines will not grow on rich land, but in ordinary seasons, at the time when the fruit should ripen the vines die. I have not been able to decide the exact cause of this, but think the disposition of vines to continue growing, together with the maturity of fruit, requires more nourishment than the roots can supply. The exposure should be south and east, so that they get the morning sun; west slopes burn them and the vines will not thrive on the north. Great care should be taken as to seed. If growing in a locality where only one variety is grown, I would not hesitate to plant seed grown in that locality, but where everything from a Rocky Ford to a White Japan is planted I would buy the seed from where the variety was grown exclusively. Bees love the canteloupe flower and when working on them become covered with pollen. They may visit the hives after working on one variety before going to another and yet carry sufficient pollen to mix them, the mixture showing the following season.

"In preparing the land I would keep clean the year before by plowing under all growth while green and before seed was ripe. In my judgment decaying humus destroys the flavor. Where there are frequent rains the melons will have numerous small cracks on the side next the ground and just as they ripen they absorb the flavor of decaying humus and the flavor is gone. Turning them over when grown or putting something under them to keep them off the ground would usually save them, but this is impracticable for commercial growers, for the reason that all the time from 3 a. m. to 9 p. m. is consumed in packing and marketing.

"As to time of planting in this latitude, on high land, when land can be worked, any time after April 1st until May 15th; on low land, where there is more danger of frost, the early planting should be delayed until April 15th. For early planting I prepare a low, broad hill; later, very little if any hill, and for very late no hill. About 1½ inches of loose earth on top to prevent baking for early planting is deep enough; seed may be planted deeper later on. The rows should be 5 to 6 feet apart each way, owing to the vigor of growth of variety planted.

"As to varieties, I plant nothing but Rocky Ford seed. When well grown it far surpasses anything I have ever seen. I sold them last year in competition with Colorado stock, in many instances getting the preference. Cultivation must be thorough, allowing nothing else to grow. My way is to plow them with Planet Jr. five shovel, then hoe the weeds from around the hill, avoiding loosening the earth near the roots, as the canteloupe is one of the most sensitive plants to any injury that may happen to its roots that I have ever cultivated. The first hoeing after removing all weeds pull some moist earth from a distance around well up to the leaves, firming it lightly with the fingers, this strengthens the tender little plants against wind. Should heavy rains fall it will usually prevent their washing out. A shovel of earth placed on the hill at the last working is a great benefit, protecting them from being pierced by 'church larks,' also from the sun.

"The enemies of the canteloupe vine are many. The cucumber bug is generally considered the worst. It may be sucessfully fought by spraying with Bordeaux mixture. Wire worms sometimes destroy whole plantings. The only remedy I know is to change to other land. Mice frequently dig up and eat the seed. They cannot be successfully fought, so far as I know. When rabbits are plentiful near they sometimes trim the vines so they bear no fruit.

"The matter of marketing is as important as the growing. Melons should be graded and crated; the grower should have the confidence of the buyer to a degree that when the buyer is informed as to quality and condition of the melons, there will be no chance for dispute. I make three grades, all of which are first class, the only difference being the size. Mark the exact number in each crate. In this way the grades are easily distinguished. Pack them so that if the local trade does not take your supply you can go to the shipper with your melons in first class condition, nothing being necessary to except to nail up top of crate. I sold last year $170 worth of melons from one acre of land. Culls make good hog feed and save corn; give the hogs all culls."

Discussing this paper, Mr. Maxwell said he had been troubled with striped bettles on his melon and cucumber vines, and had used the dust spray to fight them. It was very effective. A neighbor had cucumber vines badly infested with lice, and the dust compound had killed all of them.

A. W. Haefeli had used soot from a boiler on his melon and cucumber vines and it was effective in keeping insects away.

Attention was called to experiments which have been conducted by several of the experiment stations which prove that Bordeaux mixture has usually enough poison in it to rid the vines of insect pests.

Mr. Rau had started canteloupe plants in a greenhouse in order to get them out early, and red spiders had about ruined them. He has never seen a plant which was so attacked by red spider as canteloupes when started in a greenhouse.

Canker Worm and Codling Moth.

You can rid your orchard of these pests by the use of lime dust and paris green, applied to your trees. The high cost, inconvenience and danger to foliage by using water as a carrier are all avoided by using lime dust as a conveyor. If a limited quantity of poison which you are compelled to use with the water will kill these pests, why will not an unlimited quantity which you can use with the lime dust do it? The lime dust and paris green is sure death because you can use enough poison to get them. It is easy of application, always ready and comparatively speaking, inexpensive. Prof. Stedman says spraying is a nuisance but it has to be done. We think he referred to the wet process of spraying. If we are in error, we ask pardon and our apology is ready. These pests, with many others, are liable to attack your trees late in the season as well as now. If you have a good liquid spraying outfit and have used it intelligently, you are safe as long as you use it. With heavy outfits it is impractical and too expensive to make the number of sprayings necessary for the best results, and in the event of attack later in the season, when you think your crop is assured, few persons will take the trouble and incur the additional expense of another treatment. Our best authorities advise to prepare for both dust and liquid.

We appreciate very much the indulgence of our patrons in waiting on the Cyclone, while we are not fully up with our orders at present writing, you can depend from now on to have prompt service. You can depend on the Cyclone to do the work thoroughly.

DUST SPRAYER MFG. CO.
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Rollman Cherry Seeder

THIS perfect Cherry Seeder does not crush the cherry or cause any loss of juice; a practical machine for large, small or California cherries. The seed extracting knife drives the seed into one dish and actually throws the cherry into another. The marks of the knife can scarcely be seen on the seeded fruit. It seeds from 20 to 30 quarts per hour.

At your dealers for 75 cents, or sent by mail or express, charges pre paid, on receipt of $1.00.

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Whitewashing, Spraying and Painting Machine.

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This Machine will Whitewash Buildings, Walls, Barns, Poultry Houses, doing it far better, saving ¾ the time over the old method of using brush. Will Whitewash Buildings, or Spray Trees any height by using extra hose and exteusion rod to elevate Spray. Endorsed and used by hundreds of noted Breeders. It is used and endorsed by Sid Conger, Shelbyville, Ind.; U. R. Fishel, Hope, Ind.; Meadowbrook Poultry Farm, Dallas, Pa.; G. W. Brown, Camden, Ark.; A. G. Duston, Marlboro, Mass.; Texas State Fair Ass'n, Dallas, Texas. **W. B. Dean, Secretary of State Board of Agriculture, Yankton, S. Dak., says:** "We gave all State Fair Buildings two coats with your machine. It is a complete success and a great labor saver." In order to get them introduced in every locality, we will allow freight to your station, for the

NEXT SIXTY DAYS ONLY,

at the following net cash prices: No. 6.—Eight Gallon Heavy Galvanized Steel, complete as shown in cut with 10 feet of ½ inch hose and one 8-foot bamboo extension rod and brass cylinder pump with agitator, **$12 00.** No. 7.—Sixteen Gallon size, **$15.00.** Terms cash with order, or we will ship C. O. D., if $3.00 accompanies order. Take advantage of our **Special Offer.**

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He who attempts to grow fruits now-a-days without a spraying outfit, goes into the work handicapped. Blight and bugs, rot and rust, mold and mildew—all conspire to damage the crop, and in all cases succeed to a greater or less extent if the horticulturist does not spray. The very best goods in this line are made by the Field Force Pump Company, of Lockport, N. Y. The illustration herewith shows the.... **EMPIRE KING Spraying PUMP,** made by the **Field Force Pump Co. of Lockport, N. Y.** and is one of the very latest improved outfits for this work of spraying. This is the only pump having a mechanical automatic agitator with a brush for keeping suction strainer clean. This company also manufactures the **Garfield Knapsack** and **Orchard Monarch,** and can furnish the **New Process Lime,** which requires no slacking or straining. If the reader will write to the Company, addressing them at 35 Market Street and mention this paper he will be furnished free a valuable book of instructions.

SPRAY OR SURRENDER

That is the ultamatum that the Insects and Fungi have served on every fruit-gorwer of America. If you do not heed the warning you will not get profits from your orchards.

Every man who sprays intelligently at the proper time, finds it the most profitable operation on the farm.

The Eclipse Spray Pump

and outfits are as much superior to the common pumps as the modern self-binder is to the old grain cradle.

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Our Improvememts for 1902 make our Pumps Absolutely Perfect

MORRILL & MORLEY, Benton Harbor, Mich.

WESTERN FRUIT-GROWER, ST. JOSEPH, MISSOURI

FRUIT PROSPECTS.

Since our last report there have been few changes in the condition of fruits, and what changes are noted are for the better. Indications are that strawberries will yield better than was expected. Plants are scarce and yet a good rain throughout Missouri and Kansas has brought out beds which were supposed to be beyond relief. The scarcity of plants will likely allow berries to grow larger, and in this way the shortage will be made up, to some extent. However, strawberries will still be scarce, and good prices will rule for good stock. Texas berries sold well, and Arkansas berries are bringing good prices, and are generally arriving on market in good shape.

The only other change of note is in regard to apples, and growers everywhere feel more encouraged, with the exception perhaps of New York state, where cold weather has prevailed, and it is feared heavy frosts have injured some fruits. In the Middle West the weather at blooming time was almost ideal, the bloom was heavy, and all reports are to the effect that fruit has set well. Canker worms are doing some damage, but it is not believed the damage will be general. More spraying is being done than ever before and growers are hoping for a good yield of apples—the best, so far as the Mississippi and Missouri valleys are concerned, since the large crop of 1897.

As stated last month, the only peaches in the Middle West, will be from the south line counties in Missouri and Kansas southward, but in that section the crop will be very large.

Our summary of reports follows; and the question we asked in regard to drouth injury refers to the dry weather of this spring, and not to last season's drouth. Unless otherwise noted, therefore, the drouth is the one of this spring, which had been thought to injure some fruits.

Bentonville, Ark.—Picking of strawberries is in progress. Twenty per cent of crop will be available for shipment. Other small fruits promise fair crop. Peaches nave an excellent set. Fair prospects for apples; bloom was good, weather was windy at blooming time, with some rain. Dry weather this spring has caused no damage. Peaches are in the lead of our fruits.—I. B. L.

Mammoth Springs, Ark.—Strawberries are ripe and a very light crop, not over 25 per cent. Raspberries and blackberries, 25 per cent of crop. Peaches promise three-fourths of crop, Elbertas being good. No Ben Davis apples, other varieties with heavy bloom, but most of it fell off; weather at blooming time warm and windy. Had plenty or rain. Pears blighting some; grapes, plums and cherries fair crop. Nearly everybody is spraying trees.—D S. H.

Nauvoo, Ill.—Strawberries half a stand, but blooming heavy and apparently setting well; about 50 per cent of crop to ship. No peaches to speak of. Nearly all apple trees loaded with bloom and apparently setting well; weather at blooming time variable. There is no question that last year's drouth was the cause of so much fruit being killed by the cold weather of last December.—E. J. B.

Savoy, Ill.—Strawberries promise good crop, but none are grown here commercially Blackberries full of buds. No peaches. Apples bloomed full, weather clear and warm, with heavy rain occurring just after the midseason of bloom. Second spraying is nearly over with, and prospects flattering.—R. L. D.

Neoga, Ill.—Strawberries are good, other small fruit fair. No peaches. Prospects for apples good, extra heavy bloom in all cultivated orchards, with weather very pleasant at blooming time. Dry weather has had no effect yet. Canker worms at work in some unsprayed orchards.—H. A. A.

Vernon, Ill.—Small acreage of strawberries, half a crop to ship. Other small fruits half winter killed. No peaches. Apples in good condition, with good bloom and perfect weather at blooming time. No injury from dry weather, but canker worms are playing havoc in unsprayed orchards.—E. W. J.

Hamilton, Ill.—Strawberries are scarce. Other small fruits only fair. No peaches. Fine show for apples, good bloom, with fine weather. No injury from drouth, for we have had fine rains.—H. D. B.

Batchtown, Ill.—Strawberries not commercially grown here. Plums and cherries promise good crop, but no peaches, and peach trees were badly winter killed. Few apples this year; bloom was very light. Cold weather of February, 1899, and December, 1901, with drouth of summer of 1901, killed a great many of our apple trees.—J. R. D.

Olney, Ill.—Peaches in fine condition. Apples had very heavy bloom, and prospects are excellent; weather at blooming time was good, and bloom was very evenly distributed throughout orchard. Dry weather has had no effect yet, but we will need lots of rain this season, or damage will follow.—J. F. J.

Griggsville, Ill.—Strawberries promising, but no surplus to ship. Other small fruits promise fair crop. Peaches are killed. Apples had very heavy bloom, and crop promises well; weather during blooming period warm, with slight rain. No injury from drouth yet. Even four-year-old apple trees bloomed. Spraying and cultivating of orchards is more general this year than ever before.—C. G. W.

DuBois, Ill.—No berries here for market, and peaches are a failure. Apples are setting well and promise good crop: Ben Davis, Jonathan and Wine Sap make best show. Indications are that we will have a larger crop of apples than a year ago, although we need rain now. Canker worms are bad in some orchards.—A. A. H.

Vincennes, Ind.—Good prospect for strawberries, with perhaps 75 per cent of crop; other small fruits damaged. Peaches are scarce, some few Triumph, Champion and Greensboro, but few Crosby or Elberta. Nearly all varieties of apples promise well; bloom was heavy, with weather at blooming time fair and favorable. Dry weather has caused no damage yet, but strawberries will be cut short unless rain comes soon.—H. M. S.

Davenport, Iowa.—About half crop of strawberries, but none to ship. Other small fruits will be absorbed by local demand. About 5 per cent peach bloom. Plums and cherries have set a fair crop. Apples had 80 per cent bloom, with cool weather during blooming.—N. K. F.

Glenwood, Iowa.—Strawberries promise 30 per cent of crop; raspberries, 60 per cent; blackberries, 15 per cent. No peaches to speak of, and apples promise 65 per cent of crop. Bloom was full on some varieties, with weather good. No damage from drouth yet, but heavy winds injured apples by whipping bloom, making blight perhaps 10 per cent.—J. P. J.

Des Moines, Iowa.—Strawberries promise 62 per cent of crop, plants being scarce from drouth of last year. Red raspberries 40 per cent. No peaches. Apples promise 85 per cent; bloom was normal, with rain at blooming time. Black raspberries promise 50 per cent of crop, blackberries 40 per cent, grapes 45 per cent, plums 95 per cent, cherries 86.—W. G. Sec.

Topeka, Kan.—Strawberries rather light crop with but few to ship. Other small fruits also have light crop. Peaches only in southeastern corner of state. Apple prospects are good all over the state; bloom was plentiful, with windy weather. Drouth this spring has done some damage.—W. H. B., Sec.

Atchison, Kan.—Strawberries very scarce, also raspberries. No peaches. Apples promise good crop; weather at blooming time was good. Dry weather has injured some fruit crops, but apples will have a good crop with fair season.—O. H. P.

Holton, Kan.—Strawberries promise very poor crop. Raspberries promise well, blackberries 50 per cent. Apples 100 per cent; very heavy bloom and fruit has set well; weather at blooming time dry and warm; apple trees have set ten times too much fruit. Cherries promise half a crop in some sections, in others none. Some damage from drouth.—F. W. D.

Rosedale, Kan.—Strawberries never looked better. Small fruits are coming out well since rains. No peaches. Ben Davis and some other apples had 50 per cent bloom, others none; weather at blooming time was ideal. Dry weather has helped fruit to set. Cherries, early, set 25 per cent crop; later sorts set70 per cent; young trees show up best. Pears in some orchards promise well. No Japan plums set, but Wild Goose and natives set well.—F. H.

Troy, Kan.—Strawberries 50 per cent of crop, plums 90 per cent, pears 40, cherries 50. Apples promise full crop. Canker worms at work in some orchards.—A. P.

Benton Harbor, Mich.—Strawberries promise fair crop, with perhaps two-thirds of last season's crop to ship. Peaches promise half a crop. Apples bloomed full and promise well; weather at blooming time was fine and dry. No injury from drouth yet.—R. M.

Watervliet, Mich.—Strawberries, 75 per cent of crop. Peaches promise 65 per cent, and apples 60 per cent of crop. Bloom on apples was good, excepting Spy; weather conditions were good, with no injury from drouth yet.—R. H. S.

Lebanon, Mo.—No strawberries nor peaches. Apples have good prospects; weather at blooming time good, with rain late; heavy bloom. No injury from drouth.—A. T. N.

Marionville, Mo.—Great improvement in strawberries in last 30 days, and there will be 100 per cent of last year's crop to ship, or more. Peaches promise full crop. Apples 90 per cent of last season's yield; bloom was good, but uneven; one light rain during blooming time did no damage. A great many growers regard fruit prospects as better than those of a year ago.—W. T. F.

Kansas City, Mo.—Strawberries, one-third of crop; about half crop to ship from Southern Missouri. Apples promise 50 per cent of crop; bloom was 75 per cent, with heavy wind. No damage from drouth yet.—L. A. G.

St. Joseph, Mo.—Strawberries promise light crop, not over third of full crop. Blackberries, 40 per cent; raspberries, 75 per cent. No peaches. Kieffer pear bloomed light, others half a crop. Cherries, 80 per cent crop, and plums 100. Grapes, not over three-fourths of crop. Apples generally promise full crop. Ben Davis and Jonathan bloomed extra full, and weather at blooming time was ideal. Trees are in good condition, and altogether apples never promised beter, excepting that canker worms are working in some orchards.

Neosho, Mo.—Some strawberry fields promise as high as 100 per cent, others as low as 25 per cent; 60 per cent of last season's crop will be to ship. Dewberries promise full crop. Peaches also promise full crop, with conditions fine. Apples promise about 50 per cent crop; bloom was light on Ben Davis and most other varieties that bore well last year; Missouri Pippin very full; weather at blooming time rainy. No damage from drouth; in fact, has been too wet. Spring has been fine, too much rain at times, but apparently no injury was done.—F. H. S.

Oregon, Mo.—Strawberries, half a crop; blackberries, 50 per cent; raspberries, 30 per cent. Few peaches. Apples promise 80 per cent of crop; bloom was good, with good weather at blooming time. Think no damage from drouth this spring.—N. F. M.

Tupelo, Miss.—About 30 per cent crop peaches. Apples about half a crop; bloom was fair, with weather wet. Few pears, cherries half crop, Japanese plums good crop.—G. H. H., Jr.

Brownville, Neb.—Strawberries promise about three-fourths of last year's crop, and other small fruits the same. No peaches. Apples to date promise A1 crop; bloom was excellent, and weather good.—R. W. F.

DuBois, Neb.—Strawberries badly damaged. Few peaches. Prospects for apples excellent; weather was dry and windy at blooming time, but bloom was full; canker worms are quite bad. Think cherry and pear trees would have set more fruit if we could have had more rain and no. frost; frost kiled all cherries in some places.—C. O. B.

Gasport, N. Y.—Strawberry prospects are good, also other small fruits. Peaches had full bloom. Apples not in bloom, but prospects good. Weather is cold; thermometer stood at 29 degrees on the morning of May 10, with heavy frost.—C. B. S.

Adams Basin, N. Y.—Strawberries are all right, also other small fruits. Peaches look well, but snow broke down a good many trees. Apples, with exception of Baldwin, blossomed full; weather is good, and if we have no storm within a week, apples will have good crop.—C. B.

Lockport, N. Y.—Strawberries not yet in bloom. Cherries and peaches bloomed heavy, but peaches are not yet out. Apples will bloom well, except Baldwin. Spring has been wet and cold, but indications are for an abundant fruit crop of all kinds.—D. T. M.

Bradrick, Ohio.—Strawberries will be light crop, as will other small fruits. Extra early peaches are very full., later sorts half crop. Rome Beauty apples promise extra good crop, with light bloom on other varieties; bloom was too heavy on Rome Beauty, but just enough set to make good crop. Spraying is being extensively done, more liquid than dust spray.—U. T. C.

Middleton, Pa.— Strawberries are all right for full crop. Peaches look well and should yield full crop. Apples are all right, bloom full, with good weather. General prospects are good for all kinds of fruit.—A. C.

Spring City, Tenn.—Have commenced to ship strawberries, and will have 90 per cent of last year's crop. Look for full crop of peaches. Apples are only fair; bloom was heavy, but much of it dropped on account of cold. Pears will be plentiful. On the whole, the outlook for fruit in this district is excellent, and there is a good deal of it, and planting is on the increase.—R. B.

Tioga, Texas.—Strawberries were scarce. Peaches and apples are in fine condition, pears half crop. Blackberries and dewberries full crop. Cherries are light, but Jananese plums are overbearing.—E. C.

Winchester, Va.—Strawberries, 90 per cent; other small fruits good. Peaches, 80 per cent; Apples, 50 per cent; weather dry and favorable.JW. S. H.

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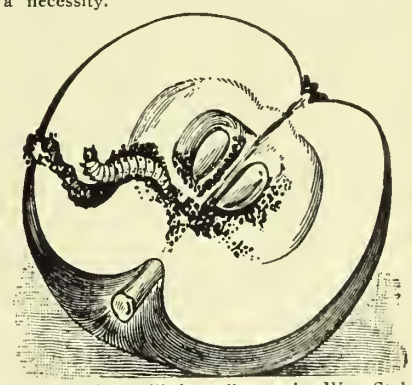

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Henton & Hubbell, Chicago, Ills.

THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

Volume Eleven MAY, 1902 Number Five

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ADVERTISING RATE.
Per Agate Line .....10 cents
Fourteen lines to the inch.
No advertisements in class generally termed "objectionable" received under any conditions. Editions are mailed on the 15th of each month. Forms close on the 8th.

Subscription—One Year, 50 Cents
Three Years, in Advance, $1.00
Remit by U. S. Coin, Postoffice Money Order, Express Money Order, Registered Letter or Bank Draft. Send stamps only as last resort. All remittances at our risk.

Unless otherwise ordered, subscription will commence with month following date of remittance, and continue until ordered stopped and arrearages paid. If you desire paper to stop when time is up, notify us. The letter "S" after date on your address tag signifies that paper will stop on that date. The address tag stands as a receipt for your remittance. No other receipt will be sent except on special request or with clubbing or premium orders.
In compiling a list of over Twenty Thousand subscribers it is an easy matter to make mistakes, but we guarantee fair treatment to every one. If you find an error in your address tag, or do not receive paper promptly, write us and we will trace matter up at once.

Entered as Second-Class Matter in the postoffice at St. Joseph, Missouri.

The Western Fruit-Grower desires the name and address of every orchardist in the United States who has 20 acres of apple orchard, or more. We desire not only the name, but the size of his orchard, his shipping station if it is different from his postoffice, and the varieties in his orchard. For instance, we desire the reports to read like this:

D. A. Robnett, Columbia, Mo.—120 acres, Ben Davis and Jonathan.

This list will be compiled by states, and from this list we hope to receive reports later in the season as to the apple crop. This information will be laid before the apple buyers of the country, with names and addresses of orchardists, and the plan will bring buyer and seller close together, and will result in a better distribution of the crop. The benefit to the grower will be in the fact that all the buyers in the country will be made aware of his orchard and probable crop, and he will not be at the mercy of a single buyer. The advantage to the buyer of fruit will lie in the fact that he will have a directory of all the growers in any given community, and when he goes into that section to buy fruit he will know what supply is available, and where the fruit is to be found.

There can be no question that a great loss has been sustained by both buyers and sellers of apples by reason of the imperfect system of reporting the crop. Two years ago this loss was especially notable. The work the Western Fruit-Grower proposes to undertake is taken up at the suggestion of horticultural societies and similar bodies throughout thecountry. The system can hardly be perfected this year, but a start will be made now, and every reader of the Western Fruit-Grower who has 20 acres or more of apples is urged to send the information concerning his orchard, together with those in his neighborhood who have orchards of this size.

The value of this crop-reporting bureau depends of course on the extent of the response on the part of the growers. If 100 growers respond, the system will not be as helpful as if 1,000 do so. In time we hope to secure the address of every commercial orchardist in the country for this list, and the work will be pushed until this is accomplished.

Don't delay sending your name and information desired. When the system is perfected, there will likely be a small charge—say $2.00 a year from each orchard listed—for maintaining the bureau, but this season there will be no charge whatever, nor will there be until the system has been developed to a point where the orchardist will be benefited many times more than the charge made.

If any further information is desired, write at once. But send list of your orchard and those of your neighbors—AND DO IT TODAY.

We have had occasion to compliment Texas and her citizens lately on the progress the state is making along horticultural and truck-growing lines. Perhaps in no line has greater improvement been made than in the packing of strawberries. Texas berries have arrived on the markets in much better condition, in amny cases, than Arkansas berries shipped a much less distance. Texas is coming to the front in every way.

With this issue of the Western Fruit-Grower notices are mailed to those persons on our list whose subscriptions have expired. There are likely errors in this list, for it would be a strange thing if there were none in a list the size of ours. But all errors will be cheerfully corrected when our attention is called to the matter. And to those who receive the notices we would say: If your subscription is due, will you please remit at once. The price at which the Western Fruit-Grower is furnished will not permit of our losing any subscription money, and we urge our friends to remit promptly. We believe the paper is being continually improved, and no one can afford to be without it when it is furnished at the present subscription rate. Your remittance does not amount to much to you, but if several thousand readers of the Western Fruit-Grower are delinquent, think what the loss is to us. Send in your renewal as soon as you receive the notice, and then the matter will be settled right and will be out of the way.

With a full crop of apples this season, as now seems probable, the lower grades of apples will go begging at marketing time. On this account the wise grower should try his best to keep his apples from grading low—get as many No. 1s as possible. To do this will require much work, but if it is not done there will be many who will say next fall that apple raising does not pay. The codling moth is the worst enemy to fight, perhaps, and it should be fought in every way possible. The best advice obtainable has been published in the Western Fruit-Grower this season, and the addition we make to this information in this issue, in regard to banding trees, is most timely. Spray against codling moth, band the trees—fight the pest in every way possible, for no matter how large the apple crop there will not be too much strictly first grade fruit. This much can be accepted as a fact.

Reports of fruit prospects show little change from last month. The strawberry crop is not going to be larger than was estimated, and growers who will have fruit are holding out for good prices. Apples still promise well. In some sections canker worms have done some damage, but the crop on the whole promises to be the best for many years. Let us hope the apple crop will make up for the shortage in other fruits.

The exposition to be held in St. Louis has been postponed for a year, and will be held in 1904. This will give more time for the arrangement of the buildings, and more time for foreign governments to prepare their exhibits. It will also give fruit-growers more time to prepare to furnish strictly fancy fruit for exhibition, and the opportunity should be improved.

Attention of advertisers is called to to the announcement regarding change in rates. This increase will be justified, for with a circulation now of 20,000 copies per month, there should be little doubt that our circulation will be 30,000 per month by the first of next January. Our friends are working as they have never worked before, and we expect no dull season in the subscription department this season. Several thousand of our readers will yet send in one or more new subscribers, for we count on having at least one new subscriber from every reader. Have you sent your list? If not, send it today.

There are likely mistakes in our "Roll of Honor" which is published in this issue. There are other names which should be there, perhaps, but we wish to assure all our friends we appreciate the work they have done in sending in new subscribers, whether they sent one or 100. We wish to express our thanks to every reader of the Western Fruit-Grower who has helped to extend our circulation in every way. We will endeavor to show our appreciation by improving the paper.

TO OUR ADVERTISERS.

At the present time many advertising contracts in the Western Fruit-Grower are expiring, and almost without exception the advertisers say they will use increased space next season. We are truly glad to know that nearly every advertiser, if not every one, has been well pleased with returns from the advertising in this paper.

We wish to suggest to them that it will pay them to use small space during the summer season, and then enlarge their orders when autumn comes. They can contract for a year's advertising now at our present rate of $1.40 per inch. In September our rate will be raised to 15 cents per line, $2.10 per inch, on all contracts made after that date. This increase will be pustified by the increase in circulation, which for next season will reach 30,000 at least.

It will be seen, therefore, that an actual saving can be effected by contracting now for one or more inches space every month for the next year; then when greater space is desired next winter, it can be used at the same rate.

The circulation of the Western Fruit-Grower is guaranteed—no paper stands higher among its readers, and it has proved to be one of the very best mediums used by any of our advertisers.

Advertisers should make their contracts now and secure next season's advertising at bottom price—and at the same time have the advantage of the additional publicity which continuous advertising wil give them.

The Bushel Box.

It is frequently mentioned that the bushel box is a better packing case for apples than is the barrel, but what is a bushel box? There appears to be no standard for it, either as to capacity or its make up.

It is said the fruit-growers of California are endeavoring to have their legislature legalize a bushel box, the dimensions which are 10x12x20 inches, or 2,400 cubic inches. The Oregon and Montana box is 10½x11½x18 inches, or 2,173.5 cubic inches. Another Oregon box is 10x11x22 inches, or 2,420 cubic inches.

A bushel box made at a box factory at Van Buren, Ark., is 11x11x18½ inches, or 2,238.5 cubic inches. A bushel vegetable crate advertised in the Western Fruit-Grower is 12x13x17 inches, or 2,652 cubic inches, and other dimensions have been given for the size a bushel box should be, not taking into this account the size of the bushel box measure used at evaporators, which are whoppers. The U. S., standard or Winchester bushel contains 2,150.42 cubic inches when level full, or struck measure. The socalled heaped bushel is one-fourth more, or 2,688 cubic inches, and presumably is added to make up for spaces among articles measured, but the bushel was never intended for measuring liquids or other articles having no spaces and holds a bushel when level full. The measures usually found in the stores will not hold as much as the standard.

Whilst packing apples in some Van Buren boxes they were measured in the ordinary half-bushel measure of stores and found that a box tightly packed in tiers would fill this half-bushel measure twice slightly heaped, but not as much as is ordinarly done or expected. Now what should be the size of this box? Its capacity should be uniform throughout the country and should be satisfactory to the merchant who has to re-measure their contents in smaller quantities. By an act of the legislature of the state of New York, an apple barrel there must hold three full bushels. Does that mean three heaped bushels or three struck bushels? Grocerymen say the ordinary apple barrel used in the west will not hold eleven pecks as they usually sell them.

This is an important question and should be discussed at horticultural meetings and definitely settled in some way. Also, the manner in which the box is made, whether ventilated so mice can have ready access, as well as to be a temptation to "boys" to make larger openings, or should they have tight sides, bottom and top.

These boxes are often exposed to the ravages of rodents and if open or ventilated are much easier of attack. If paneled ends are used they are more conveniently handled as well as lighter, and not requiring thick material clear across the ends.

The "bushel box" certainly needs attention. O. MULVEY.

Arkansas.

PRINTING for Nurserymen and Fruit-Growers
We have the best equipped plant in the West for the printing of Nursery catalogues, price lists, blanks and stationery of all kinds. We can quote you prices on special engraved designs, half tone cuts, etc. Make a good impression on your prospective customer by having modern, up-to-date printing—it will pay you. Write us when in need of anything in the printing line and let us figure with you.
WESTERN FRUIT-GROWER
St. Joseph, Mo.

The Sugar Bowl of The West
Is in the Arkansas Valley of Colorado.
All records in sugar-beet culture have been surpassed in this valley.
This is the home of the famous Rocky Ford Cantaloupe and the Big Red apple.
Sugar Beets, Cantaloupes and fruit pay well. No other crop anywhere pays better.
The whole valley is under irrigation.
Irrigation is an insurance against loss of crops through drought or flood.
There is only one way to reach this wonderful valley, and that is via
The Santa Fe
Address W. J. BLACK, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

GRAPE VINES Our Portland, N. Y. Grape Nurseries, in the center of the famous Fredonia Grape Belt, produce the finest grape vines in the world. Prices as low as those of any reputable grower.—STARK BRO'S, Louisiana, Mo., Portland, N. Y.

GOLD IN A NUTSHELL
New Book, all about Nuts. Price, 10 cents.
AMERICAN PLANT & SEED CO.
NASHVILLE, TENN.

Red Cedar Nursery
KENT, IOWA
1,000,000 Red Cedar for Spring delivery.

	Per 100	Per 1,000
One year from seed	$ .50	$4.00
Four to six inches	.75	6.00

By mail, 2 to 4 inches, 150 for $1; 4 to 6 inches, 100 for $1. Send for free catalogue.
F. H. BRUNING, KENT, IOWA.

Crown Gall

ONE of the newer diseases of nursery trees which is attracting much attention is crown gall, which is most often found on the apple, generally attacking the tree at the crown. In our April number, Dr. H. M. Ochiltree, Haddam, Kansas, asked about the treatment he should give a number of Missouri Pippin trees which are affected with this disease. Prof. Howard of the Missouri Experiment Station, after referring to the contagious character of the disease, and the difficulty with which it is combatted, says the only treatment is to remove the knots and paint over with a whitewash made of copperas, blue stone and lime. This, of course, makes it impossible to fight the disease in the orchard—it can only be done before trees are planted, and even then is of doubtful advisability.

This disease is so hard to eradicate, is so contagious, and is becoming so common on nursery trees, that we devote more space to the discussion of this disease this month. Crown gall is a subject which is discussed by nurserymen in their conventions, as well as by fruit-growers in their meetings; it is being studied by the experiment stations, but the disease is not as yet thoroughly understood.

Last year the Kentucky experiment station published some interesting matter on this subject, which was prepared by Prof. H. Garman, state nursery inspector. The experience of this gentleman with the disease is similar to that of others who have studied it. Prof. Garman found 1,100 trees which were affected, and in most cases the disease had entered where the graft had been made. This has been so generally the case that many have supposed the disease was due to the manner in which the grafts were tied, or something of that sort. Prof. Toumey of Arizona, however, states that the disease is due to a microscopic organism, to which he has applied the name Dendrophagus globosus. This germ is more apt to enter the tissues of the plant at the cut surface where the graft was made.

Prof. Garman of Kentucky says: "It has been demonstrated that crown gall is a contagious disease, to be conveyed to seedling trees by crushing the galls and putting them in soil in which seeds are planted. Trees grown with others that are galled are therefore not above suspicion, even when they show no outward evidence of the disease. The disease is not restricted to the nursery. When transplanted to the orchard the galls continue to grow, eventually producing large warty masses at the base of the trunk. Such trees can never be very profitable, since in their enfeebled condition they will not bear well.

"The trees examined in Jessamine County were, in most cases, galled where the graft had been made, indicating that the parasite invaded the tree by way of the cut surfaces. In most cases the growths were at or a few inches below the surface of the ground, the depth depending upon how the trees had been planted, but occasional trees showed an abnormal swelling just above the ground, with a warty surface, as shown at A, Fig. 1. These swellings have an appearance of having been caused by the same parasite as the others, but seemingly because of exposure to the air fail to develop the rough, broken surface characteristic of those developed in the soil. The latter have a somewhat spongy character at first and when old become brown, while the dead outer surface breaks away, as shown at B, Fig. 1. Quite often the attack had resulted in the complete destruction of the tap root below the gall, in which case numerous fibrous roots had generally developed above the lost tip, often pushing out from the midst of the gall. Small knots were sometimes observed in the fibrous roots, but these were of but slight importance compared with the large growths on the central root and stem.

"Remedial Treatment.—Galled trees may well be burned at once, not only because they are unfit for a place in the orchard, but because if allowed to grow they endanger other trees in their neighborhood. Soil in which the diseased trees have grown should be avoided for some time.

"It is rather difficult to get to the gall, without taking up the tree, in such a way as to remove the diseased parts with a knife, and even under the most favorable circumstances the cutting would have to be so severe that it would very likely weaken the tree, and while, therefore, this treatment cannot be considered satisfactory, it is the best that can be recommended to those who are not disposed to take affected trees out and burn them. Bordeaux mixture applied to the outside of the galls can do little more than kil the parasite at the surface."

FIGURE 1.—Showing Crown Gall on apple trees: (A) Gall which appeared above the ground; (B) below surface of soil, with surface of gall tissues breaking away. (Photo by Prof. Garman.)

In connection with what was published in April Western Fruit-Grower, Dr. Ochiltree, owner of the affected trees, whites as follows:

"Permit me to make a short reply to Prof. Howard. He says to leave the Missouri Pippin trees affected with crown root gall, and that several good crops might be secured from them before they die. In Washington County, where I live, just east of the sixth principal meridian, it is a mooted puestion whether the healthiest and best cared for trees will pay or not. I had 5,000 Missouri Pippins planted, and the treatment he recommends to cure the crown root gall, by digging the ground away and scraping the gall off, and then applying a solution of lime, sulphate of copper and iron would be too expensive as an experiment. My Missouri Pippins had been planted two years, and the entomologists and horticulturists I applied to advised me to dig up and burn the trees. This I did, as the trees were also badly affected by the woolly aphis.

"According to the best authority I consulted this disease originated in the nursery. I have no doubt of this myself. When my workmen were heeling in these trees my foreman called my attention to crown root gall, and remarked that he believed the trees were diseased. I paid no attention to what he said, and did not think he knew anything about disease in trees. I remember also of rejecting a number of trees with white looking roots, but did not then know that it was woolly aphis. I suppose a man who is ignorant of tree diseases, and is not a professional horticulturist should not engage as a pastime in horticulture. I have little sympathy for the man who is duped by the traveling quack doctor, and I suppose the professional horticulturist has little sympathy for me because I have been bit by the quack nurseryman. It is an easy thing for a dishonest nurseryman to defraud an innocent purchaser. Too much of it is done. I would like to ask the readers of the Western Fruit-Grower what they think should be done with a dealer who would sell diseased fruit trees, when the disease was so plain that even an ignorant workman could notice that something was wrong, but did not know enough to tell what it was or how bad it was. The Western Fruit-Grower was honest enough to expose the lamp fraud. Wouldn't it show up dishonest nurserymen? H. M. OCHILTREE.

Haddam, Wan.

Dr. Ochiltree's case is surely one which should call for relief. It is hard to conceive that the stock could have been inspected, and yet 5,000 trees have been affected by crown gall and not be noticed by the inspector. If the trees were bought from a responsible nursery a suit for damages can likely be maintained. If the trees were bought from a tree dealer, then there is perhaps no recourse. We will explain that by "tree dealer" we do not mean an agent for a known nursery-firm which is responsible, but refer to that class of tree sellers who buy their trees from everywhere, from the cheapest market. Against such a man there is no recourse—but none should buy of such a man, anyway. If the trees were bought from a regular agent from an established nursery, then the nursery is responsible for the loss.

Better Than Paris Green.

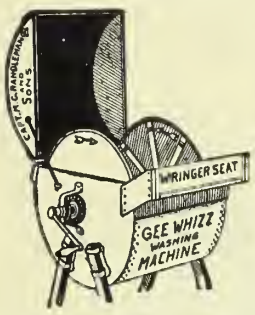
There have been so many complaints from use of paris green as an insecticide, on account of burnt foliage, adulterated poison, the readiness with which the paris green washes off, and the great trouble to keep the poison in suspension, that entomologists and chemists have experimented to get a better insecticide. This has been found in Disparene (arsenate of lead) manufactured by Bowker Insecticide Co., Boston, Mass. This preparation has many claims over any other poison which is used for insects, namely, it kills the insects, does not burn the foliage, sticks to foliage and fruit much better than any other poison, and remains in suspension in barrel much better. Its presence is shown by its white color on foliage, and it sticks like paint, even a heavy rain not washing it off. Prof. E. Dwight Sanderson, entomologist of the Delaware experiment station, after using Disparene, writes: "Disparene proved to be very much superior to paris green, and destroyed a larger percentage of codling moth larvae than has ever been done in any other similarly conducted experiments before. The one thing that seems to me to make Disparene of value is its adhesive qualities. In spite of very heavy rains it remained on the trees all summer."

Those who have burned their foliage with paris green, also those who have failed in their spraying work because of impure chemicals, will welcome Disparene. The Bowker Insecticide Co., Boston, Mass., is reliable, and will send full information to all readers of the Western Fruit-Grower who write for same. Mention this paper in writing.

GASOLINE ENGINES FOR FARMERS.

There are many uses to which gasoline engines can be put on the farm, and every farmer should have one. For the purpose of pumping water for irrigation no power is better than the gasoline engine In this issue of the Western Fruit-Grower the Weber Gas and Gasoline Engine Co., of Kansas City, Mo., have an ad to which we call special attention. This firm makes engines of all sizes, but a specialty of a 2½ horse power engine which is just the thing for our readers. They have furnished many engines to fruit farmers, and have a splendid proposition. Their engines are shipped from the factory almost ready to run, and no expert is needed to set one in place and connect it. No engineer is required to operate it, and the cost of running the engine is trifling. It will be remembered that Mueller Bros., whose plant was described in our columns last year, use gasoline engine to pump the water, and Mr. Ernest Mueller told us it was the best investment they ever made. The engine runs all day with no attention, except to oil the bearings, etc. We hope every one will read the ad of Weber Gas and Gasoline Engine Co., and send for full information. One of the engines wil pay for itself in a single year on any farm, and especially on a fruit farm, where it is used to pump water for irrigation. Please mention Western Fruit-Grower when you write and you will receive the best treatment.

The horticultural department of the Missouri University is investigating the orchard of J. W. Patton, near Macon, Mo., which has never borne any fruit, although the trees are 14 years old, in good soil, and have made a splendid growth.



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Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

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1415-1417 E. 18th St. Des Moines, Ia.

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BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.

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Extra Choice Fruit and Ornamental Trees, Small Fruits, Roses, Shrubs, Vines, Etc. Superb Stock; must be sold quick. It will pay you to get our prices.

ALPHA NURSERY CO., Alpha, Illinois

Nebraska-Grown Trees

are hard to beat. We pay the freight; our catalogue is free. It will save you money. Apple grafts made to order. Scions taken from bearing orchards if preferred.

BOWER NURSERIES

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Free INFORMATION ABOUT **Hens**

By poultry editor of Vick's Family Magazine, Rochester, N. Y. Blank and sample copy FREE.

STARK TREES best by Test—74 YEARS. Largest annual sale. High quality—NOT high price. FINEST sorts. We BUD 4 million Apple trees, whole-root graft 5 million—1- and 2-yr. Other Trees, Vines, etc., in proportion. 1400 acres Nursery 43,000 acres Orchards. FRUIT Book free. **We PAY FREIGHT** box and pack free, ask no money till SAFE arrival,—guarantee SATISFACTION **We PAY** CASH each WEEK and want more HOME and traveling salesmen Stark Market and Quality Kings PAY: Apple of Commerce, Black Ben Davis, Champion, Delicious, Senator, Stayman Winesap; Gold plum; Kieffer; Elberta.—Visit us STARK BROS. LOUISIANA, MO. Dansville, N. Y. Stark, Mo., etc.

J.G.PEPPARD BUYS AND SELLS

MILLET, CANE, KAFFIR, POPCORN, SEED CORN, ALFALFA, TIMOTHY, CLOVER

AND ALL KINDS OF **FIELD AND GRASS SEEDS**

1101 to 1117 West 8th, Near Santa Fe St., KANSAS CITY, MO.

Major Frank Holsinger's Department

GANO vs. Black Ben Davis.—We did not expect when we gave our opinion of the two apples exhibited in Topeka last winter to stir up the animals as we have. We did not, as friend Goodman seems to think, say the "Black Ben Davis was a different apple from Gano." We didn't even pass on the merits or demerits of the two apples. All we claimed was that two plates shown in competition, at that time, one labeled "Black Ben Davis," one "Gano," were not the same variety, noting certain differences.

I confess I did it very much against my own prejudices, as I have during all the past persisted in saying they were one and the same. I confess, like others, I did it superficially. I had not even taken the precaution to investigate the matter carefully as I should. My prejudice was "forninst." "There are other pebbles on the beach," or I am greatly mistaken.

I tried to have Messrs. Goodman and Gano with us in the final test. They failed to tarry with us, or I feel assured they, too, had been convinced as were Mr. Walter Wellhouse and the other horticultural gentleman who did join us in our examination.

In the discussion on this question, and it is considerable, I am found fault with principally by the nurseryman, while I am sustained in my decision by the fruit-grower. Now, why this? Is it a fact that competition is allowed to enter into this matter and thus bias the nurseryman in his contention? In a recent interview with Major W. G. Gano, author of the famous apple bearing his name, whose opinion on nomenclature of apples I cherish more highly than most anyone I know, said, "I am inclined to think the apple shown at Topeka was a different apple than one shown under the name of Black Ben Davis on former occasion." More. "I am inclined to think it a different apple."

A very interesting article on this subject in the Practical Fruit-Grower of April 5 signed Parkville, Mo., is timely and very much to the point.

In speaking of the committee to be appointed by the Missouri State Horticultural Society, as suggested by Mr. Goodman, he says: "This is a good idea, and we hope an impartial committee will be appointed to decide it." So say I. So should all say.

Now, how shall this committee be appointed? By whom shall it be appointed? I have had my say. I confess I am disqualified. Mr. Goodman has been equally positive on the other side; he surely is debarred. Mr. Goodman sets considerable stress on Prof. Stinson's opinion. He says in a late issue of the Western Fruit-Grower: "When you get apples from the original tree and compare them, like Prof. Stinson has done, should it not be satisfactory?"

Who is Prof. Stinson, that he should pose as an expert on nomenclature. At the Princeton meeting I met the professor for the first time. He was then stationed at Fayetteville, Ark., and came with fourteen varieties of seedlings. I had the pleasure of acting with the Professor and Mr. Baxter of Illinois on the fruit committee. In his report on these seedlings Prof. Stinson says, page 245, Missouri Horticultural report of 1899: "Black Ben Davis, Etris and Arkansas Belle are from Washington County, Ark. If you want trees you will be perfectly satisfied by buying Gano trees. They are practically the same."

I was even more pronounced. I said, "they are the same." Is not the use of the word "practically" an admission of doubt concerning the varities? If not, I confess ignorance of the King's English.

By all means give us a committee; but above all let it be a representative one and one qualified to speak as an oracle. It will require time to fully determine this question of difference. For one, I am in it, having secured the several varieties, and have ten, each, Ben Davis, Gano, Black Ben Davis, Reagan and Etris, side by side. But then, who shall report? My sixty-seven years may require another to do so. This, I doubt not, will be done, by one of my three sons, possibly by all; as each are intensely alive to the subject—having their care. Of one thing I am convinced. That should they be pronounced the same, or "practically" the same, blessed is the man who shall have planted them and thrice blessed he who shall have influenced others to plant them. "For he who causes two blades of grass to grow where only one grew before, is twice blessed."

Irrigation.—Owing to the continued drouth the boys have run out their engine and are watering their strawberries. They have discarded their little one and one-half inch pipes and are using three inches instead. This entails considerable expense, as three inch tubing costs about 30 cents per foot. They were induced to use cotton hose three inches in diameter. Have had 270 feet constructed which they attached to their iron tubing. It seems to answer every purpose and owing to its flexibility is far more convenient than iron. The expense is only one-third of that of iron of same size.

Last summer's experience taught them an important lesson—to be prepared and on time. Indications of rain have been frequent but all to no purpose. Should rain still come, which is devoutly wished, the expense of getting the appliances ready will have been small. If not, the benefits resultant from the pumping of water to the plants must compensate. We hope to report on this later.

Major Frank Holsinger:—About the middle of March I received from a friend of mine at Boone, Iowa, about 100 currant sprouts of last year's growth, which I cut up into two and three pieces each. When I had finished I found I had 350 cuttings from six to nine inches long These I placed in the ground two rows abreast, six inches apart an an angle of about forty-five degrees. I cut them so that there were two buds in the ground and also two buds out of ground. I mulched them with small stone by laying them very closely about each cutting. This I did more for an experiment than otherwise, which I have found was a good thing, for at this date, April 26, there are over 300 of the cutting rooting nicely, and both buds above ground have leaved out nicely. Please to inform me through the Western Fruit-Grower in May number if I shall take them up this fall and reset, or let them remain where they are until next spring. They tell me here the currant cannot be grown to become fruitful in Arkansas, but if the stone mulch will produce fruit, I will apply them freely. —W. E. Greene, Rogers, Ark.

The currant is as easily propagated from cuttings as is the willow. The stone doubtless retains moisture in the soil and your success in getting so large a percent to grow proves it. There is no occasion for you taking up the plants this fall. The only thing that could possibly injure them would be severe freezing weather, which I take it is not likely in your vicinity. Owing to the currant being shallow-rooted, it is easily injured by both heat and frost. A mulch of any kind will be good for them. The assertion of your friends that the currant cannot be grown in your state is owing to conditions of temperature. The currant thrives further north. It is a little far south to expect the same results in currant growing that they have in Michigan and the New England states. I was assured that currants could not be grown here. I found, however, they can be grown but at this time we are very much discouraged as the low temperature of 1899 was disastrous to our currants at least leaving them to be finished by the high temperature of last summer. A range in the temperature from 32 degrees below to 110 is more than the currant can stand. These conditions may not occur again in a life time. I shall try currants again. Owing to their easy propagation, there is not much expense attending their culture, and when they do hit, they are a good thing to have in the family.

A Correction.

In your preface to my notes on "Better Quality in Watermelons," you unintentionally stated something to be a fact which is intended to be, and is complimentary, yet is not really a fact, and is doing and is liable to do me greater damage. I hope you will allow me space to make the correction. It is this: "That W. A. Burpee, the great Philadelphia seedsman, has purchased one of my best varieties and is now introducing it." This sentence is all right, except the "purchase" part. I have a high regard for Mr. Burpee and think him great in his line and to have him introduce a thing is a synonym of merit. But the "purchase" carries with it the exclusive control and sale of seed. This is not a fact. Mr. Burpee has made no such purchase. Did not even buy seed from me, nor consult me about cataloging my melon and I did not know he had done so until I began to receive orders from people who knew me, stating that Burpee was out of the seed and wanted them from me.

Now, I have no complaint to make against Mr. Burpee. He bought his seed fairly and honestly from a seed raiser in Nebraska to whom I sold seed, only I want it understood that he has no exclusive rights to handle my seed. I only wish all seed men were as honorable and careful as he in the class of seed they handle. I would not look forward then to the day when the seed of the Halbert melon will become degenerated by mixture with inferior varieties, the standard lowered and the reputation hurt by careless seed raisers and unprincipled seedmen.

An agriculturist cannot protect himself in what he originates like an inventor. He may copywright a name, but this will not protect against a change in name and the same thing being sold under a different name. This state of affairs will be worse than the first, as in the former case the name may be of some help and credit to originator. As in my case, where people knew me through newspaper correspondence, and saw Mr. Burpee's catalogue, they have sent to me for seed. And since the issue of your valuable journal I received letters from persons in other states complimenting me on the article and incidentally stating that they had sent to Burpee for seed, showing your prefatory remarks had misled them.

Now, as a matter of fact, all consumers had rather buy from the originator direct, as he is most interested in keeping up a high standard. I am not a monopolist and do not believe in patents and protection. I am willing to enter in a fair, open contest, and if I cannot sell as good or better seed as cheap or cheaper than my competitors, I have too many other things I can pay attention to and make a living out of. The sale of my melon seed is at present one of my principal branches in farming and the only compensation I ever expect to receive from my long years of laborious effort in perfecting the Halbert watermelon.

Now, Mr. Editor, do not consider this an advertisement, for it's getting rather late to plant, and I have no seed on hand of any consequence, but it is simply to place the facts fairly before your many intelligent and fair-minded readers. I am going to give you an advertisement next season, when I hope to have a large supply of seed from forty acres I am planting in the Halbert watermelon.

H. A. HALBERT.

Coleman, Texas.

IRRIGATION

After the experience of last season, no one will deny that it pays to irrigate strawberries and other small fruits, gardens, etc. Last year many irrigation plants used for this purpose paid for themselves in the single season.

But START RIGHT. Don't depend on a windmill, which stops working just when water is needed most—remember last season's experience.

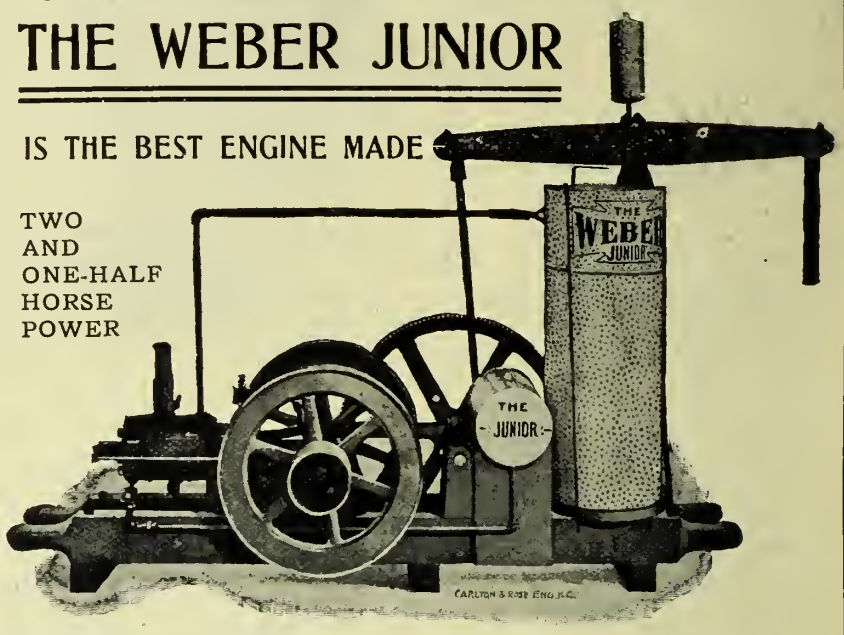
A gasoline engine runs all the time, at slight expense, with little attention. It can be used in all kinds of weather, for all purposes. Does not require an engineer to operate. IT IS THE CHEAPEST POWER KNOWN, if a good engine is used. The engines are comparatively light and can be moved from place to place as desired. They can be used to pump water in summer, to saw wood in autumn, and grind feed in winter. They are money-savers in many ways.

Now, just a word of caution: Don't experiment with a poor engine. Get the best. It will pay many times over. We want to tell you about the best gasoline engine made—one which is guaranteed to do all that is claimed for it.

THE WEBER JUNIOR

IS THE BEST ENGINE MADE

TWO AND ONE-HALF HORSE POWER



This cut shows this splendid engine. It is 2½ horse power, and is shipped from the factory ready to run, so that any farmer can set it up and operate it. It will pump your water, grind your feed, run wood saw—in fact, it is just the power which every farmer needs. The walking beam is to use when pumping, and is detachable when desired. Hundreds of farmers use the Weber Junior to pump water for their irrigation plants, and we want to hear from every reader of the Western Fruit-Grower who is interested. Your fruit needs water every year, especially at fruiting time. Don't lose a good crop from lack of water. Major Holsinger put in an expensive steam engine, requiring the services of an expert engineer, last year, and yet his costly plant paid for itself in a single season, watering berries—he will put in a gasoline engine now, and make money.

Catalogues and full particulars mailed free. Address

Weber Gas and Gasoline Engine Co.

Box 116. KANSAS CITY, MO.

The Lee's Summit Star Nurseries

Can supply your wants in nursery stock. If you have our blue catalogue your name is on our mailing list. If not, drop us a card.

M. Butterfield & Son

LEE'S SUMMITT, MO.

If you desire your young trees to grow without ever being damaged by rabbits, put on them

The DAVIS Wire TREE Protector

Many thousands in use. If you value your time and labor of wrapping, tying, putting on and off, this is the cheapest and best device known. First cost the only cost. $2.26 per 100, $19.50 per 1,000. Stark Bros. Nursery Co., Louisiana, Mo., write, after sending out 30,000: "We have yet to receive a single complaint."

Direct all communications to

JOHN W. DAVIS, JR., Clarksville, Mo.

Spray Pumps

If you are going to use a pump this season, you must order in a hurry. We are prepared to fill telegraphic orders for Field Force Pump Co.'s and Morrill & Morley's Spray Pumps, and for Leggett's Powder Sprayers. ..

CHEMICALS For Spraying

Send us your orders for Paris Green, London Purple, Sulphate of Copper, White Arsenic and all other chemicals used in spraying. We can save you money and furnish best of chemicals.

COW PEAS

SOY BEANS, RAPE, CANE SEED ETC.

We handle all kinds of Seeds of the best grade, including the foregoing. The supply of some kinds, especially Cow Peas, is very short, and all orders should be sent at once. Send list of your wants for prices.

MISSOURI VALLEY SEED CO., A. G. SAMUEL, Manager. ESTABLISHED 1870. ST. JOSEPH, MISSOURI.

418 Edmond St. St. Joseph, Mo.

New Haven Nurseries

NEW HAVEN, MO.

Location, 67 miles west of St. Louis, on main line Missouri Pacific Railway.

We are on the market for Fall of 1902 and Spring of 1903 with over one and a half million fruit trees. They will be grown to the highest possible standard. Will book orders now at lowest prices and would advise early contracts to secure varieties and grades wanted.

A personal inspection of our stock is invited. 200,000 of our two-year Apple are all on heavy well branched whole roots, which fact enabled us the past sason in securing a good growth in spite of the great drouth of 1902.

Our Peach Trees are all budded on seedlings from native pits and trees produced are not excelled in quality anywhere.

New Haven Nurseries, New Haven, Mo.

How WOMEN May EARN More MONEY

I have a booklet describing over 100 new and novel ways by which women in towns, cities or country can add to their income. If you wish some money making plan adapted to your own ability or conditions, send me your address for descriptive pamphlet of these plans. It is FREE. Cora D. Gould, Kanawha, Iowa.

Z. K. Jewett & Co., Nurserymen

SPARTA, WIS.

Sphagnum moss in car lots a specialty, both in wired and burlap bales. Quality the best.

We Pay Freight

First class nursery stock. Prices right. Get our catalogue. A complete list of Apples, Japan Plums, Pears, Blackberries, 90,0000 Carolina Poplars, all sizes; Roses, Strawberries, Garden and Field Seeds, Seed Potatoes. Agents wanted to sell our trees. Pay commision weekly. Address J. M. T. Wright Nursery Co., Portland, Ind., Box 13.

1,000,000 Tomato Plants

For the canner. 500,000 Premium Late Flat Dutch Cabbage and other plants. Our catalogue tells all about it.

CALEB BOGGS & SON

CHESWOLD, DEL.

MISSOURI STATE MEETING.

Following is the program of the summer meeting of the Missouri State Horticultural Society, to be held at Eldon, Miller County, June 10, 11 and 12. Musical and literary numbers on evening programs are omitted:

Call to Order, President Murray.

Address of Welcome, Mayor Henry Philips.

Address of Response, G. T. Tippin, Vice President Elect.

"Means of Education for the Fruit-Grower," C. H. Dutcher, Warrensburg.

"Flowers," Mrs. G. E. Dugan, Sedalia, Mo.

"Orchards on the Rich Missouri Lands," E. T. Butts, Mayview.

"North Missouri Strawberry Lands," Henry Schnell, Glasgow.

"South Missouri Lands," H. M. Wallace, Seligman.

"Growing Selected Plants," D. McNallie, Sarcoxie.

"Varieties and Cultivation," D. A. Turner, St. Joseph.

"Strawberry Growing in Southwest Missouri," Prof. J. T. Stinson, Mountain Grove.

"Drouth Resistant Varieties," Fred Yost, Jefferson City.

"Commercial Fields and Methods," H. S. Wayman, Alvord.

"Making and Saving," Geo. Raupp, Monett.

"Raspberries," A. Taylor, Harrisonville.

"Blackberries," M. Oliver Cole, Springfield; J. P. Sinnock, Moberly.

"Dewberries," Discussion.

"Currants and Gooseberries," Chas. P. Baender, Moberly.

"Cherries," Thos. J. Foster, Washburn; John C. Curfman, Maryville.

"Some New Fruits," J. H. G. Jenkins, Spring Garden.

"Selection of Strawberry Plants," W. L. Howard, Columbia.

"Grape Growing in Missouri," W. H. Skinner, Bethany.

"Vines and Varieties," Ed. Kemper, Herman.

"Some Fungus Enemies," Prof. S. A. Hoover, Warrensburg.

"The Audobon Society," O. Widman, Old Orchard.

Business Meeting. World's Fair, St. Louis; Treasurer's Report, M. Butterfield; Secretary's Report, L. A. Goodman; Reports of Committees, Finance, Fruits.

"Peaches—Location and Planting," T. M. Culver, Koshkonong.

"Cultivation and Pruning," H. W. Jenkins, Boonville.

Discussin on Varieties and Methods.

"Some New Plums,"S. R. Walker, Liberty.

"How Best to Handle Peaches," Mrs. A. Z. Moore, Mountain Grove.

"Alfalfa," Prof. F. B. Mumford, Missouri State University.

"My Experience in Growing an Orchard," Herman Kelsay, Eldon.

"Our Natural Helps in the Orchard," Conrad Hartzell, St. Joseph.

"Some New Fruits," J. H. G. Jenkins, Spring Garden.

"Poultry on the Farm," N. J. Shepherd, Eldon.

"Spraying, Proofs of the Value," E. J. Baxter, Nauvoo, Ill.

"The Powder Duster," W. D. Maxwell, St. Joseph.

Discussion on Liquid and Dust Sprays.

Report on Fungus Diseases, Prof. H. von Schrenk, Shaw School of Botany, St. Louis.

"The Orchard Business," Jas. H. Handley, Quincy, Ill.

"A Lesson on the Apple," G. B. Lamm, Sedalia.

"Beautiful Shrubs and Herbaceous Plants," Prof. H. C. Irish, Missouri Botanical Garden, St. Louis.

"Nursery Troubles," M. Butterfield, Farmington.

Report of Committee on Final Resolutions.

Adjournment.

Questions and Answers

T. N. H., Pittsfield, Ill.—Please give name of insects that destroy or injure fruit, the females of which are wingless and must ascend the trunk in order to reach the tree?

The female canker worm is perhaps the most dangerous pest in this line, although the damage which is done by its larvae is to the foliage of the tree, rather than to the fruit. Bands placed around the tree late in winter or very early in spring will prevent the female spring canker worm from climbing the tree.

J. H., Illinois.—What is the best way to fight raspberry anthracnose?

Answer by Prof. Howard: Spray with Bordeaux mixture of the strength of 4-4-50 before the leaves come out. After this give three more sprayings with Bordeaux of the strength of 2-2-50, making the second application soon after the young canes appear above ground and directing the spray toward them alone as the leaves of the older canes are sometimes easily injured. Repeat in about two weeks. Give the fourth and last application just before the time of blooming in the same manner as before. If the disease is abundant it is advisable to cut out and burn all of the old fruiting canes each summer as soon as the crop is picked.

J. H., Edinburg, Ill.—You will oblige me very much by giving me some information about "chiggers;" they are called by various names, as "jigger," "chigger," "chegre." They are in my grass and worst in my raspberry patch. It is a very small red insect that burrows in or under the skin of people. I would like to know some kind of spray wherewith I could exterminate them. They appear only in summer.

Answer by Prof. Stedman: The "chiggers," so called, are not true "chiggers," but are minute mites, which may be killed when they get upon a person by rubbing pure kerosene over the affected part. So far as killing these creatures in the gras and raspberry patches are concerned, it is practically imposible to do so without killing the plants. Thhere are a number of patent remedies said to kill these insects, but my experience is that they are practically valueless.

S. H. C., Nelson, Mo.—Enclosed find an insect. I had some two-year apple trees wrapped with common newspapers to keep the rabbits from barking them. The 2d of May I took the papers off. I fund from one to four in the folds of the paper. What are they, and ought they to be killed?

Answer by Prof. Stedman: The insect which is enclosed is known as the New York Weevil. These insects will eat the bark off the tender shoots and also the opening buds, but there is no practical way of getting rid of them, since one cannot well spray the twigs on account of the great number of leaves on the trees.

E. K. M., Arcola, Ind.—How much tobacco dust should I use for the apple tree root aphis on trees about ten years old, and how should it be applied?

Answer by Prof. Stedman: For a ten year old apple tree that is badly infested with the woolly aphis you should dig the dirt away from the roots for about two feet around the tree and about four inches in depth, fill in evenly about five or six pounds of powdered tobacco and then cover the earth over this and allow the rains to wash the nicotine down about the roots. This should be done as soon as possible now. The earlier the better in the spring. Next year you should put about half the quantity of tobacco used about the trees and in the same way, putting the tobacco close to the trunk as well as out for some distance.

J. P., Lawrence, Kan.—The lantern moth trap appears to be generally condemned by those who have made the most thorough tests. How is it with the trap where vinegar is used intead of the lantern? I have been using this trap and have caught many moths that I thought were the codling moth. Has anyone used this trap that can give accurate information?

Prof. Stedman says trap lanterns and vinegar traps are both ineffectual in catching codling moths.

C. J. O., Rock Creek, Ore.—I am sending you under separate cover pieces of apple twig covered with black bug or aphis. What is it? What the best spray for it? We are not troubled with pests here, altitude 4,500 feet, air very dry. Plenty of water to irrigate. Seasons short. Prospects for all kinds of fruit good, but a little early to estimate yet. We think your paper the best thing that comes along.

Answer by Prof. Stedman: The stems are covered with the eggs of the common apple aphis. As soon as these hatch you can kill them by spraying with ten per cent kerosene mechanically mixed with water, provided you have one of the new pumps with the kerosene attachment, and in case you haven't one, spray thoroughly with the common kerosene emulsion. This should be done before the aphis have time to curl over the leaves and becomes protected from the spray.

G. H. P., York, Neb.—Last fall I bought a number of peach trees and heeled them in for the winter. I now on taking them out find one-fourth of them badly infested with borers, some so small as to be hardly seen, others full grown. What shall I dip them in so that the borers will be killed and the trees not injured?

Answer by Prof. Stedman: The best thing you can do with your young trees is to dig out the borers with a sharp knife and then when you plant the trees give them a good thick coat of whitewash made by dissolving a gallon of soft soap in a bucket of water and thicken this with lime. It would be well also to put wooden wrappers about the trees for at least a year or two and to lift up the wrappers two or three times during the spring and summer and give the trees another coat of whitewash. Then in the fall along about the fore part of September go through the orchard again and dig out what borers might have gotten in. There is no single remedy that one can follow which will keep the borers out.

W. H. W., Adair, Ind. Ter.—My apple trees are dying; seemingly from a root disease. Can you advise me what the trouble is?

It is impossible to say at this distance, although it is possible the trouble is root rot, for which there is no known remedy.

D. D. A., Ladd, Va.—I have been reading your paper the past season with interest and profit. I bought a spray pump from one of your advertisers. Sold apple crop for from two to three times as much as neighbors who take no fruit paper and consequently do no spraying. Should sod be allowed to remain in orchard when trees are twenty-five to thirty years old? (2) Can old, neglected trees be topped down and pruned out thorouhgly in same season, especially after a heavy crop, with safety and profit to trees? (3) Which is more profitable, to dig out and plant new, or graft our trees of twenty years or more which have been neglected and are not very thrifty? (4) Should any changes be made in cultivation, pruning, spraying, etc., for seventen-year locusts?

Answer by Major Holsinger: (1) I would answer No. 1: I feel sure that were you to break the sod and cultivate your orchard you would experience a change for the better. The trees require help that cultivation more than anything else can give. (2) Old trees that have suffered neglect cannot be satisfactorily renewed. You will find it up hill work. I would rather plant a new orchard than undertake the herculean task of topping, grafting, etc., necessary to produce fruit that in the end is unsatisfactory. Should you determine to undertake it, first cut only one-half the top; getting young shoots to graft. After these are large enough to graft and well estahlished, then cut balance of the top, treating as you did the first half. (3) I am cutting such an orchard into stove wood. The trees are old and little and I concluded to get them out of the way by the shortest route. (4) The seventeen-year locusts do very little damage except to small or newly set trees. Spraying can be of no value, as the locusts do not feed after they appear. They simply perform their function of reproduction. When they have laid their eggs they die. The branches stung, in which the eggs have been deposited, fall to the ground; the eggs hatching, the insects enter the ground and there feed until their time for reappearance, which is seventeen years. In ground that is cultivated many of the larvae are doubtless destroyed by disturbing them, throwing them to the surface, where the birds may prey upon them. In young trees the part stung should be cut off and burned. We hal our seventeen-year locusts four years ago and I found it necessary to treat a young orchard in this way. Don't think I lost a tree by them, yet many were badly injured. When I found a tree stung I cut it off just below the injury. These trees were three years from graft.

W. T. R., Mynard, Neb.—I have an orchard of Ben Davis and Winesap; about ten rows of Ben Davis and then one of Winesap. (1) I would like the opinion of someone who knows about the fertilization of such an orchard. Is there a probability of there being too many Ben Davis in a block to fertilize themselves to a profitable degree? If so, why can't I top work some Winesap onto the Ben Davis? The trees are seven years old.

Answer by Major Holsinger: (1) I am of the opinion that Ben Davis is self fertile. I have them in blocks and can see no difference Two years ago I visited a 40-acre block of Ben Davis and could see no difference. The 40 acres was one immense crop. (2) I think it unnecessary to graft any other variety to insure fertility. Should Benjamin fail to set fruit, I should seek some other cause than sterility.

T. W. G., Wier, Tenn.—I wish to ask a few questions with regard to storing and keeping apples. (1) Will apples keep as well if put in an air tight chamber, the top of chamber being two feet below the earth's surface, with about two feet covering of dirt over ceiling, where it is perfectly dry, say two feet below the earth's surface, so that it will be cool at

(Continued on Page 14.)

Commercial Orchard

Successful commercial orcharding depends upn the following factors:

First—Trees must be true to name.

Second—Trees must be grown on Nature's plans.

Third—Trees must be properly dug and packed so as not to lose their vitality.

Fourth—Varieties must be adapted to soil and climate before congenial environments exist.

Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.

Sixth—There must a mutual consideration of each other's interests between nurseryman and planter.

Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees of our third generation of reselects thus giving productiveness, vigor and longevity to our trees not found in the common class of trees. You are specially invited to call and see our stock and examine our hearing trees.

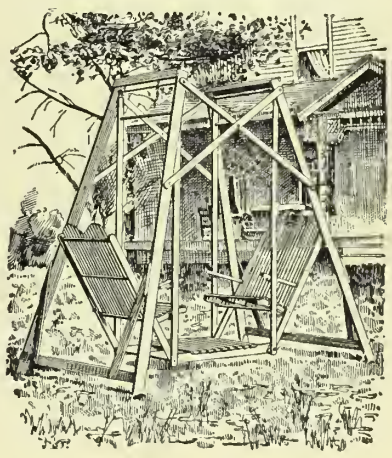
Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.

Agents wanted in every locality. Call on or write us for prices.

Yours for mutual pleasant and profitable business,

MISSING LINK APPLE CO.

NURSERYMEN CLAYTON, ILL.



St. Joseph Lawn Swing

4 Passenger $5.50
2 Passenger 5.00

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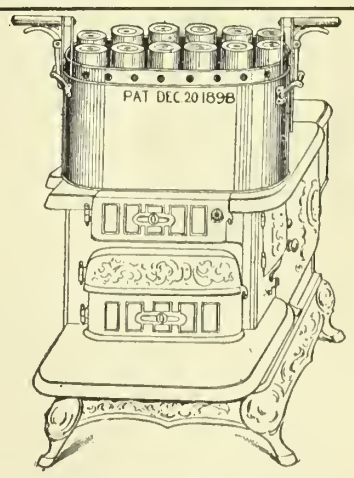
Dealers in Seeds, Spray Pumps and Poultry Supplies. Write for Catalogue and Price Lists.



Canning Machines

Send for circular describing small and large canning outfits. Hundreds of them in use. Write at once to M. FOERG Meridian, Miss.

June, July and August is the time to

Bud Your Trees

Anyone can bud his own trees by sending 25c for a box of Budders,, with directions for budding trees, to

JONH D. ABELL TALLAPOOSA GEORGIA

FRUIT EVAPORATORS. Best, cheapest and for the highest grade of fine fruit. Prices from $3.50 to $50.00.
D. STUTZMAN, Ligonier, Ind.

Strawberry Gossip

William S. Crawford

WHAT becmes of the difference between the ccost of production of berries and the price which the consumer pays? That is the important question to the commercial strawberry grower. When the berries are grown and picked the grower has finished his work as a horticulturist, so far as that crop is concerned. He now becomes a merchant. He has something to sell and he wants to make as much profit as possible out of it. The question is, How shall he do it? To reduce the cost of production of this crop is now impossible. It is now fixed. Profits must be looked for either in getting the whole selling price by cutting out all middlemen; by employing a middleman, either to increase the price or to take off from the grower's hands the labor of retailing, or for both purposes; or by employing a number of middlemen to do not only the retailing, but also the wholesaling, and to find consumers in distant markets where prices are higher. There are, of course, great strawberry centers, producing much more fruit than can be consumed locally, where the last method must be employed; but, aside from these, it appears to be the policy of the most successful growers to sell their products in the local markets.

How berries should be marketed locally is a many-sided question. Some say, Sell from house to house. Given a community where people are thrifty, always have money on hand, pay cash and are looking for their money's worth, and a grower who is a good salesman, and this advice is doubtless sound. But many communities are not such. There are places that are splendid markets and will pay top prices, if the bills do not have to be paid until pay day at the "works." The local merchants in such places carry a large number of families from pay day to pay day, and by so doing have their trade pretty secure. In such a place a peddler who demands cash stands a poor show. Should he undertake to do a credit business, he must take a greater risk of bad debts than the merchants do, for even dishonest people must pay the grocer and the butcher in order to get goods in the future, but the berry season is soon over and the fear of withdrawal of credit has no terrors. Then there are some growers who are not good salesmen, and others who have not competent help and must leave their pickers at loose ends while they are away from the farm. And there are some places where there is a considerable prejudice against peddlers who live beyond the city limits and do not pay city taxes, and this prejudice can be overcome only by cutting the merchants' prices.

All things considered, I believe that the wisest course for the average grower is to be a grower only and employ a merchant to find customers and supply their wants. He should, however, continually keep a lookout for an exceptional opportunity, such as a number of wealthy families who will pay top prices for fine, fresh fruit, a big hotel, hospital, sanitarium or other institution that will take a large part of his crop at good prices.

Selling to local grocers, however, has risks that must be looked after. It must be remembered that the interests of grower and merchant are not identical. The cost prices of most of the merchant's goods are fixed by the jobbers and wholesalers and the selling prices by competition. It is only in dealing with the farmers and gardeners that he can dictate the cost price. There is, then, a temptation to make a "killing" of their products or to buy and sell them cheap in order to draw trade for other goods. This year prices should be high The crop will be very short in many parts of the country, and berries should share in the high prices that everything else that people have to eat are bringing. But this latter fact increases the temptation to the merchant to sell fruit cheap, provided he makes a fair profit. He can make more money buying at five cents a quart and selling at seven than he can buying at eight and selling at ten. This was illustrated to me some time ago by an acquaintance. A prominent grower was selling Nick Ohmer to the stores at $4.00 a bushel and could not supply the demand. A new man in the business brought in a load of fine Nick Ohmer and sought a purchaser. A grocer inquired what price he asked. He did not know the market and he said so. The grocer told him that the market was glutted and prices were down, and he bought the load at $2.50 a bushel. He either sold at ruling prices at an immense profit or used those berries for "bait" to draw trade. The grower got $1.50 a bushel less than he ought to have done, and he probably injured the market for all the fine berries that came in for a day or two.

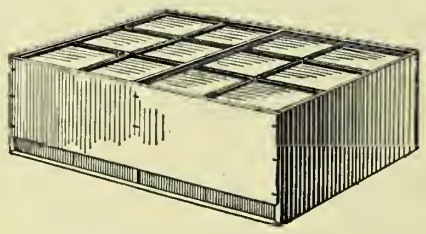
When a man engages in the strawberry business, he owes it to himself to know the market and demand fair prices for his fruit. Several years ago a prominent grower in an eastern city took to market 2,600 quarts of strawberries at one trip. The local grocers had been expecting them and had agreed among themselves to beat down the price. He tried one after another and none would give what he considered fair. Then he turned the berries all over to a commission man. The market was really short of good fruit, and the commission man made the grocers pay more than they had offered the grower and his commission besides. That grower knew his business, and the grocers found it out at their own expense.

The most satisfactory arrangement we ever had was one by which we dictated the selling price on agreement to take back any berries not sold. I do not remember that we ever had to take any back. When a grower of good fruit can make an arrangement of that kind, it is the part of wisdom to make as much difference as possible between the prices of fine and common berries. It is much better to sell 100 bushels of fine berries at $4.00 a bushel and 100 bushels of common ones at $2.00, than the whole 200 at $3.00. To be sure, the amount received is the same, but in the former instance the market is being educated to pay a good price for fine fruit, while the common is being used to get more people into the way of using large quantities. Educating the market is the great work for the future for the strawberry growers of the West. Most of us know practically nothing about really good prices for fine fruit. Two years ago Mr. E. W. Wooster of Maine, sold his Hawaii berries by the crate at Bar Harbor at 30 cents a quart. A few weeks ago a grower in Rhode Island wrote us that prices were not satisfactory last year. His first berries (Clyde) brought 20 cents a quart, then the prices dropped to ten cents with slow sales. If good growers would sort their berries carefully and sell the best at high prices and the rest cheap, they would find that some people will pay a good price for what others cannot afford to buy, partly for that reason. Growers can also take advantage of the peculiarity of many people that makes them ape those whom they consider their superiors in wealth, social standing or otherwise to the extent of running in debt to do as they do. Let it be known that Mrs. Smith, who has wealth and standing, pays 15 or 20 cents a quart for all the berries her family uses, and Mrs. Brown, who has neither wealth nor standing, but wants people to think she has, will do the same whether she can afford it or not. The latter consideration is none of the grower's affair if he is getting cash.

Every year or two the strawberry public is treated to a new "everbearing" variety, generally at so much per treat. The varieties usually make good their claims in California., where all kinds are "everbearing," and sometimes in Arkansas or further south. In the rest of the country they commonly fail to repeat. We have several well-known varieties that occasionally bear a small crop in the fall. I have seen the old Capt. Jack do so, and the Nick Ohmer sometimes does, but the one most given to this practice seems to be the Enhance.

In January, 1901, I received a very interesting letter from Mr. S. E. Mason, of Fond du Lac County, Wisconsin, which I give below. From this and other instances I have heard of, I am led to believe that in time we may learn to produce artificially the conditions necessary to make plants bear in the fall. My object in bringing the matter up at this time is to call the attention of growers to the conditions that existed in the summer of 1900, which seem to have been the cause of the peculiar actions of Mr. Mason's plants. Where such conditions exist it might be well to let a small bed remain till fall and see if it will bear again. If we could, by repeated obsbervation, learn the secret of making plants bear in October in the northern states, there would certainly be money in it for some of us. Mr. Mason's letter is as follows:

"For the first time in our strawberry experience (30 years) we grew last season a second crop in September and October in sufficient quantity to market. For years, and especially since growing Parker Earle, Warfield, Enhance, and several other varieties, we have had enough for table use several times in the fall, but this season on less than one-fourth acre of Enhance, old bed, second fruiting season last year, we picked and sold about 80 quarts, ranging from 20 cents to 50 cents per quart. They were plentiful enough so that we could take a row and pick it clean, searching the center as in spring picking, not here and there a berry on the edge of the row as is usual in the fall. At one time I picked 25 quarts alone in about four hours, selling them locally for $5.00; but as this price did not quite suit, I wrote to Milwaukee and, receiving an encouraging reply, I sent a crate, (16 quarts) there on Friday of the same week, which sold for $8.00 and brought an order by wire for more, which of course we were unable to fill immediately. This was towards the middle of October, and I did manage to send another crate toward the last of the month, which sold for the same price. Even on the 6th of November, election day, we picked six quarts, but the next day it snowed, the weather turned cold, and even those tough berries—and there were some left—were unable to stand it, and the seasn closed with election day. We consider it remarkable, especially as we always have killing frosts in September and October; but this was a peculiar season. The season was very dry up to June 15th or 20th, so much so that berries like Warfield dried up and seemed almost like dead. After each picking almost we would say the next picking would be the last, but in the meantime would come a seasonable shower; and we continued to pick up to July 10th and had more than half a crop and, with prices very much better than the last three or four disastrous years, the outcome was better than a full crop would have brought. September and October were warm and showery and for some peculiar reason that particular plot spoken of above was full of blossoms and matured quite a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crop. Light frosts were frequent but the blossoms and fruit were well protected by the foliage and were not damaged much."

Within two or three weeks those who are handling plants will notice that the roots of some varieties are turning black. Some kinds show this change earlier than others, but it will come to all of them soon. The roots that grew last summer and built up the plant have almost done their work. They have yet to mature the crop and then they will die. At that time the growth of the plant will come to a standstill. It is exhausted after its labors and needs a rest. In a short time new roots will start above the old ones. Between the bunch of old ones, dead and black, and the new ones, is about half an inch of woody crown. Each year this process goes on, until in time it strikes a limit and can go no further. Unless the plants have been well mulched in winter, nearly all of them will have been heaved up a little. That and the continued upward growth of the crown will in time put the crown clear above the ground. Then no new roots will be sent out, for strawberry roots are not like corn roots that start above ground and strike down and enter the soil. When new roots can no longer come out the plant will die. The remedy for this is to draw a little earth up to the plants each year. Then the roots can grow, and the life of the plant can be prolonged almost indefinitely.

I do not think much of keeping an old bed year after year unless it is in hills or hedge row, so that clean culture can be given after fruiting . Then it does very well to let it bear two years. Indeed, it is a sacrifice not to do so after so much work has been done on it. There are some varieties, notably the Gandy, that produce more the second year than the first, and all varieties are earlier on old beds than new ones, under the same conditions of soil, exposure and treatment. The roots of old plants are nearer the surface than those of young ones, and growth starts earlier. If one is working for the earliest berries, he will find it advantageous to have old beds.

These old beds are pest breeders unless they are looked after. Burning is now the popular and probably the best way to treat an old bed. Some care is necessary in burning a bed over. It should be done immediately after the crop is taken off. That is when the old roots are dead and the leaves are almost dead, and to mow them off and burn them deprives the plant of very little that is alive. If the work be postponed until new growth starts, injury will be done. After the bed has been mowed and the mulch has been stirred up wait two or three days until all is dry and there is a high enough wind to carry the flames rapidly. It may be necessary to put on a little straw in order to carry the fire if the mulch is very light. If, however, the mulch is very heavy and there is danger of enough heat being generated to injure the crowns, it is safer to throw a little earth over them before firing. This earth will serve to fill up around the plants, as mentioned before. The burning will kill the rust spores and most of the insect enemies, and in a few days the leaves will come up bright and green. Thenceforth, those plants will run but little.

There is a matter that causes more or less annoyance to strawberry growers that might be easily corrected if action could be had on it. There is no uniformity among strawberry plant catalogues of indicating the sex of varieties. Some place an asterisk (*) after the names of some varieties and explain that they are pistillate. Others use (P) for the same purpose. Some mark perfect blossomed (B) for bisexual or (S) for staminate and pistillates (P), while others mark them (P) for perfect and (I) for imperfect. Some time ago a man asked us the sex of the Sample. He wrote. He wrote: "Your catalogue marks it (I) and another one marks it (P)." It looked to him, as it would to anyone else, that one called it imperfect and the other called it perfect. In one case (I) meant imperfect; in the other (P) meant pistillate.

Some of these designations are not good. Mistakes are so easily made in printing that, where pistillate varieties alone are indicated, the (P) or (*) is likely to be omitted, thus making the variety appear bisexual, possibly causing some grower serious loss. It is not correct to call bisexual varieties staminate. Nobody grows staminate varieties, as they do not bear. Years ago they were grown for pollenizers, but bisexual varieties are now used for that purpose. It lies between using (B) and (P) and using (P) and (I) as to which is better. While we have been using the latter for some years, I believe the former is better. It is much more convenient to say or write "bisexual" than "perfect blossomed,;' and it is scarcely fair to call a pistillate variety imperfect when the chances are that it is perfect of its kind. This confusion is found in the experiment station reports and appears to extend from them to the catalogues, as I notice that plant growers in different states follow to a considerable extent the usage of their own stations. If the experiment station horticulturists would adopt some uniform method and recommend it to the plant men, I believe it would be adopted, as I do not believe any plant man is wedded to his particular method. Uniformity, whatever the plan agreed upon, would be a vast improvement on the present misleading confusion.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

Nectarines on a Peach Tree.

In the January number, in Major Holsinger's department, there was an account of a peach tree which bore a few nectarines last season. This seemed rather hard to believe, but it seems there have been cases of nectarines and peaches growing on same shoot. In the Gardeners' Chronicle is an account of such a case. That paper says when the phenomenon was first observed it was thought to be so incredible that the testimony of a single witness to its occurrence could not be accepted, but the evidence of numerous witnesses was required.

"In the Kew Herbarium is a drawing of such a case, and attached to it is a document (or a copy of the original document, we forget which), signed by a number of the leading botanists of the time, and bearing witness to the truth of the alleged occurrence. This was, if we remember rightly, in the latter part of the eighteenth century.

"Since that time many similar instances have been recorded, and some have been figured in our own columns. Another example has lately been sent us from Ragley Gardens, Alcester, from which establishment Mr. A. D. Christie sends us a branch with three nectarines and one peach. The tree was bought as a maiden peach four years ago. Whether it produced peaches before we do not know. All we can say is, that the peach was a peach and nothing but a peach; and that the three nectarines were equally distinct in their way, flavor included. We mention this because it has happened to us to see a fruit half nectarine, half peach.

"Mr. Christie asks us how this happens, and whether the nectarine is a sport from the peach. As the peach was known first, we presume there is no doubt the nectarine is a 'sport,' and the 'sportiveness' is not confined to the bud, but the seeds of peaches sometimes also give origin to nectarines; but then come the questions, how? why? Very often these sports are the result of the dissociation of previously blended characters. It is possible that cross-fertilization occurred between a peach and a nectarine some generations ago, that the resulting offspring did not at first show any trace of the cross, but that now from some reason which we can not fathom, there has been a sudden revision, and the heretofore mixed elements become separated."

A New Country.

By the completion of the Cody extension of of the Burlington & Missouri River railroad, in Wyoming, a new territory has been opened up which is claimed to be one of the best sections of farm land ever thrown open to settlement. This is what is known as the Big Horn Basin. This is a very fertile section, under irrigation, and has claims for settlement which are worth attention. The climate is said to be unusually fine. The winters are not nearly so cold as other sections in the same latitude or altitude, owing to the mountains which surround it. Crops can be grown which, under ordinary conditions, could not be cultivated at all.

Experiment has shown that at altitudes of 5,000 feet or less sweet potatoes and peanuts, speaking of these as illustrative products, can be successfully raised. Up to 5,500 feet tomatoes, melons and pumpkins grow. There are no irrigable lands in the Big Horn Basin that lie at an elevation as high as the last named. As a whole it is a region of oats, wheat, rye, barley, corn to a limited extent, alfalfa to the extent of two crops always in one season and often three, and all the fruits and vegetables common to the latitude. It seems destined to excel all other regions in the raising of potatoes. In quality and size and in bushels to the acre localities in Wyoming having a precisely similar soil and perhaps a slightly less favorable climate have in recent years beaten the potato record of the world. Experience in the raising of oats and barley, standard crops now for several years in localities not greatly differing from the Big Horn Basin, has demonstrated the facts of large yields and extraordinary weight and quality. At a ranch west of and several hundred feet higher than the town of Cody, in the edge of the basin, the writer has seen the standing crops of oats, rye and barley and the second cutting of alfalfa. Lying outside of any irrigation district the supply of water had been none too great for the extent of land attempted to be covered, but the crops mentioned were exceptionally good. Potatoes as served on the table were large and round, mealy, and of a flavor quite new to a man accustomed to the varying sizes and still more varying qualities supplied by the grocery person of the city. There were radishes long and round and as big as a baby's arm that were solid through and through. Such products are accepted by the people of the country as matters of course, and as often elsewhere with criticisms. Under irrigation a man demands and expects more from nature than he ever does under the conditions to which farmers are accustomed in the loder states.

Wheat has been known to exceed fifty bushels, and an average of thirty-eight bushels to the acre would be a conservative estimate.

Oats will average sixty bushels to the acre. On ranches in the vicinity of Cody a yield of from eighty to one hundred bushels to the acre is not uncommon, weighing from forty-two to forty-five pounds per bushel.

Alfalfa is the principal forage crop, soil and climate both being well suited, two crops—sometimes three—being cut each season. The average yield for each cutting is about two tons per acre, leaving in addition a sufficient growth for an winter pasture, which of itself is quite a valuable item.

Timothy is the next hay crop of importance; thrives to perfection in this soil and climate, yielding from one and one-half to two and one-half tons per acre.

Vegetables.—Potatoes, turnips, beets, onions, peas, cabbage early varieties of beans and all the other hardy vegetables obtain a growth and yield unsurpassed in any portion of the country. Potatoes will yield under proper cultivation, on an average, five hundred bushels to the acre and the yield of the others in proportion. Beets of all varieties yield enormously. Pumpkins of enormous size are grown and are a sure crop. This is the home of the cabbage, heads weighing all the way from ten to forty pounds.

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Fruit.—Fruit of small kinds, such as raspberries, strawberries, currants and gooseberries are as sure a crop as oats or wheat, while large fruits of a hardy variety, such as apples, pears, plums, cherries, et cetera can be successfully cultivated

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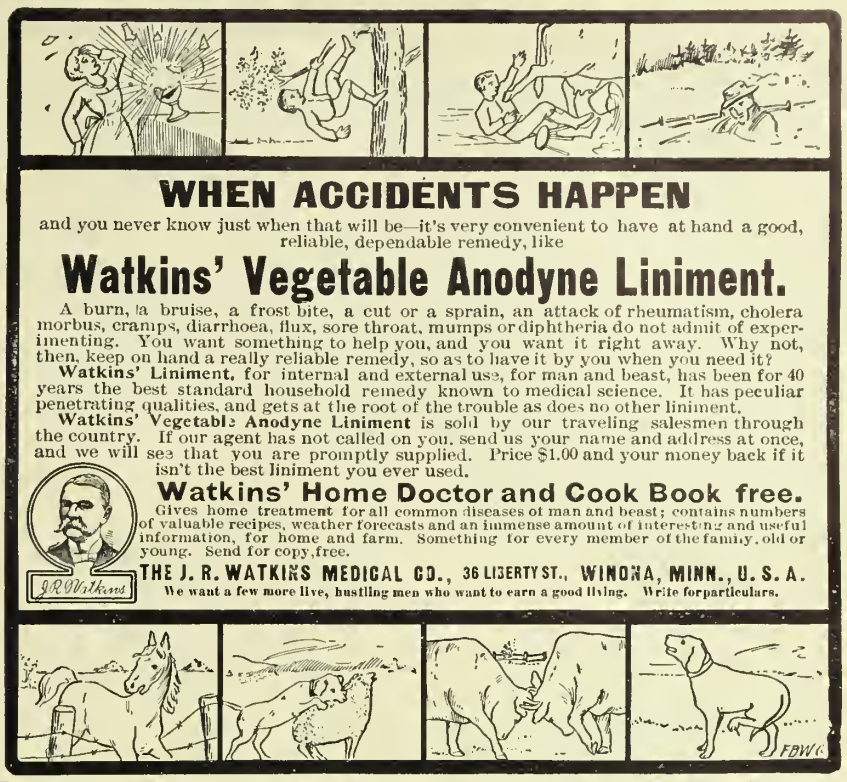

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(Continued from Page 11.)

gathering time, as they would in cold storage? (2) What effect does air and moisture have on apples after they are gathered? (3) Is it best to pile apples in the orchard, say twenty bushels in a pile, and sweat them like you would hay before they are cellared?

Answer by Major Holsinger: No, decidedly no! An air tight chamber must soon become humid. Once I tried this experiment and lost 350 barrels of the finset apples I ever raised. The apples were all in tight barrels. On opening the chamber I found the apples on the outer tiers 30 per cent lost, while all the interior had less than 30 per cent sound fruit. Give your apples air; let it be cold air to the freezing point. (2) As long as the apples are cold there is no perceptible difference in their keeping. They should not be allowed to get warm. In the process of sweating them ripening ensues. This should be avoided. Cold storage at once is the better way. I gave some attention to the handling of apples the past winter and found those that were barreled as they came from the tree were in better condition than those packed from piles, where only a few days intervened between the time of picking and packing.

S. G., Columbia City, Wash.—Will you kindly inform me through the columns of the Western Fruit-Grower how to harvest and prepare gladiolus bulbs for market? Also how to gather and clean the small bulbs, or bulblets ready for planting?

Answer by Major Holsinger: Gladiolus bulbs are easily handled. During the fall they should be taken up and thoroughly dried. The bulbs should be sorted and cleaned. The smaller bulbs can be run through an ordinary fanning mill, which will remove all foreign matter, care being taken to use only sufficient wind to do the work nicely. We use the fanning mill to cleanse many things where hand picking would be laborious and unprofitable. It can be turned to account in many ways. We find it serviceable in cleaning gooseberries, as in stripping them leaves and berries become mixed, the blowing process separating leaves from berries.

H. R. G., Attalla, Ala.—I have land lying in a valley and running up a mountain on the northwest side to about 400 or 500 feet above the valley. The land is fertile; such as hickory, poplar and chestnut growth; clay subsoil. Now I want to know if it would be a good location for peaches from foot of mountain up, or would you advise planting apples on level land and part of the way up, or would you advise apples on level and peaches from foot up? What varieties of apples, best market keepers, would you think best for this location? I want apples that will keep longest and market best. I would also like to know what cultivation to give for the beginning. The mountain side has not been cultivated; has its growth of timber.

Answer by Major Holsinger: In determining questions of this character it is sometimes very difficult, with the small amount of information we have, of the location, climate and surroundings. Now, what are the conditions? If peaches do well in your vicinity, there can be no mistake in your planting them from the foot of the mountain to the top. Of course, I know nothing of the soil. To succeed in any fruit the soil should be good, equal to producing 25 bushels of corn per acre. Such land cannot fail of tree growth when well cultivated. I have no doubt that apples, too, would do well. As to the varieties, you should find out in your own section those that bear well and keep well. This you cannot fail to learn if you confer with your nearest successful fruit grower. You will see by consulting the map that we are far to the north of you. Our varieties that do the best might be unsuited to your location and climate. As to cultivation, the ground should be put in the best possible condition before planting, and as careful cultivation as would be required to produce a good crop of corn. Nothing responds more fully to the tickle of the hoe and plow than does the peach and apple. As the land has a growth of timber, the soil will be virgin and is the better suited for tree growth than old or worn land.

I want to thank you for having sent me the March number of the Western Fruit-Grower. I like it very much. Maybe I can help answer a question asked in your last issue. Tell the gentleman who wants to know about propagating evergreen trees to follow nature; gather seeds when ripe and plant in fall. To germinate small seeds, such as Italian cypress, etc., place on a layer of burlap, then cover with burlap, and then cover the whole with two inches of good chip manure. Place in an even temperature, rather low. Keep moist and well drained. When the seeds show signs of sprouting, remove to the nursery and plant one to one and a half inches deep, in V-shaped ditch; cover with light, thin soil; the soil must be kept moist, and if allowed to dry the least bit they are gone. If the sun is hot cover the rows with sacks; drive stakes in the ground, leaving them about a foot high, with cross stakes to hold up the covering. When the plants are up nicely take the shade off, but put on again if the sun is hot and dry. I am an amateur, but have had good luck with the above plan.—H. H. Smith, Brooks, California.

Reader, Metz, Mo.—I would like some advice on cabbage growing and a remedy for worms. On land that yields good corn and had a liberal coat of stable manuring, would fertilizer be of an advantage, and would you advise using it? If so, in what quantity? I have some young apple trees set two years this spring, that have black streaks up the side. The bark is dying or rotten in streaks for two feet. What is the disease, and what to do to remedy it?

Answer by Major Holsinger: Such ground is undoubtedly suited to cabbage growing. Cabbage is a luxuriant grower, and a good coating of manure would benefit it. As to the amount, I could hardly determine, but would have little fear of getting too much. Twenty to 40 loads to the acre would not be too much. To prevent the cabbage worms would use a liberal supply of arsenic. All the authorities tell us there is no danger in the use of this poison on the cabbage. If you have fears of arsenic, use hot water. Bring to the boiling point and with a sprinkling can go over your cabbage in the early morning while the larvae are at work. A very light spray of hot water will kill all on the upper surface of the cabbage. Follow this up for a few days and you will have clean cabbages. The work is speedily done, as a single dash is all that is required. (2) Your apple trees should be replaced by others. When young two-year-old trees are thus affected there is no hope for them save in replanting. If allowed to remain some of them will linger for a few years and finally break off at the ground. A good, healthy, young tree is the only hope of success where such conditions exist. Once a diseased tree, always a diseased tree. Get rid of them by replacing others.

Poultry Department

By W. P. Laird, Oil City, Pa.

Assistance in Hatching.

Ordinarily every species of birds, either wild or domestic, has its natural term of maturing in the shell, and when its time of incubation expires it will break out of its cell in the natural way if it ever comes out at all for a useful future purpose. If the embryo is alive at the end of this natural term, but does not possess sufficient strength and stamina to work its way to the light of day of its own volition, it may as wel die in the shell, for nineteen times in twenty if it is not strong enough at this period to come forth it will never live to see maturity.

The habit that some people have of helping the chick or duckling out of the shell is one not to be encouraged. If the hen is permitted undisturbed to bring off her brood she will do this properly ninety times in one hundred far better than she can if bothered with a clumsy man around her while the youngsters are struggling out from their natural shell prison. We repeat our conviction that the better plan is to leave the hen alone. Let them work their way out themselves. If they cannot do this they are of no use. They will never survive the effects of your bungling attentions at this critical time. We have seen this thing tried often, but unless in exceptional cases never knew it to pay for the trouble it entails. But yet we shall not make the sweeping assertion that is always the best way to leave the chicks or ducklings alone to get into the world the best way they can. Where this aid is given at the proper time, ducklings that are weak may be very materially aided in clearing the shell. We have known flocks of Light Brahmas as well as Cochins, owing to some peculiarity of the strain, produce eggs that are thick-shelled, with tough membranes beneath the shell so that a number of the chicks would never free themselves unless gven assistance at this critical period.

What the Young Chicks May Eat.

Some carless ones are in the habit of throwing a large lot of food into the coop at one time, and only feeding the chicks twice a day. This plan is a lazy, shiftless one, and calculated to do injury, for in a few hours after feeding the old hen and her brood will have so fouled the food as to make it wholly unfit to be eaten by the young and tender chicks.

In view of the carelessness existing among very many, we think we cannot do our readers beter service at this particular season of the year than to urge upon the attention of those who are just now getting out their spring broods of chickens the importance of feeding the young stock judiciously. For several weeks yet it must be remembered that these young broods, however well inclined to forage, can find no provender upon the bare, hard earth, and therefore, we must supply them with food that assimilates as nearly as possible to what they can gather in great measure later in the season from the frost-ridden ground.

In April and May there is a greater supply of insects, grubs, etc., to be had in the runs and pastures. Now this sort of animal food should be furnished artificially. Finely chopped cooked meat, potatoes, turnips, cabbages, etc., mixed up in small quantities daily are excellent for this purpose. Hard-boiled eggs mixed with scalded wheat and cornmeal is a good alternative feed. Stale bread pounded into fine crumbs they will eat with a relish, and if milk can be afforded them for drink it will help them largely, as most breeders have already learned from experience.

Many breeders feed chopped meat raw or cooked, as it chances in their economy to be handiest, to their chickens very profusely, from the shell upward. But this practice is a great mistake, and if any of our readers who have been in the habit of indulging their young broods in this sort of feed will abandon its use almost entirely and substitute rice, bread-crumbs soaked in milk, cracked corn, and during the first week the yolks of hard-boiled eggs, and give only the very smallest portions of meat till the birds are two months old, and even then give it rather sparingly, they will see the difference in the health of their flocks. After the age of three months meat may be given freely.

Questions and Answers.

How shall I select eggs for hatching? In the first place buy the best. This includes the requsites of freshness, hard shells, not having been chilled and primarily of being the progeny of vigorous pure breeding stock.

Why is it my hens require meat? Apply the same rule to your hens that you do to yourself. Suppose you go without meat for a month or more you could then see the necessity of your fowls having meat. You would not then be the vigorous man that you would be otherwise. Feed your hens a little chopped meat once or twice a week and you will see a great improvement in the egg production.

Do you consider one-year-old hens or pullets the best for egg production? Hens must finish the moult before winter, and your pullets for eggs must be early hatched or they will lay few eggs before late spring.

Will green cut bone fatten poultry? readily? Green cut bone contains about 25 per cent of free fat which goes more to furnishing heat, and the too free use of it causes bowel trouble.

Do you consider it a good plan to feed any of the patent feeds and tonics advertised now-a-days? No. The man who makes a practice of feeding these socalled tonics will will soon ruin his stock and himself financially.

I have selected the largest of my Light Brahma hens for setting, but I find they break a number eggs? You have made a mistake by selecting the largest hens for your setters. Medium sized hens as a rule are better for this purpose if they are not deficient in feathers.

How am I to distinguish the fertile from the unfertile eggs in my machine, and what can be done with the infertile eggs? There is furnished with most of the standard machines of today good egg-testers. If you have a large number of infertile eggs there is always a fair price offered in the larger markets for culinary purposes. A few eggs hard boiled makes a good feed for a change for your ducklings or chicks when mixed with bread crumbs.

A number of hens I have set will not stay on the nest. What is the reason? You will have less trouble with your hens leaving their nest if you make it a rule to set them in the evening as they are much more apt to "stick." Be very careful about disturbing them for the first two or three days.

A Good Route to Try

FRISCO SYSTEM

It traverses a territory rich in undeveloped resources; a territory containing unlimited possibilities for agriculture, horticulture, stock raising, mining and manufacturing. And last, but not least it is

The Scenic Route for Tourists.

The Frisco System now offers the traveling public excellent service and fast time—

Between St. Louis and Kansas City and points in Missouri, Kansas, Arkansas, Oklahoma, Indian Territory, Texas and the Southwest.

Between Kansas City and points in Tennessee, Alabama, Mississippi, Georgia, Florida and the Southeast.

Between Birmingham and Memphis and points in Kansas, Arkansas, Oklahoma, Indian Territory, Texas and the West and Southwest.

Full information as to route and rates cheerfully furnished upon application to any representative of the Company, or to

Passenger Traffic Department,
Commercial Building,
Saint Louis.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT GROWER.
St. Joseph, Mo.

FRUIT FARMS.

DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6,000 trees,	7 rooms	5,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,300
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

Fruit and grain farm, 90 acres; fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

Send 10c silver and stamped envelope for recipe for POSITIVE CURE for rheumatism. Cures quickly; nothing to equal it; ingredients inexpensive; lasts for months. F. E. Hamel, Capitol Ave., North Lansing, Mich.

Fruit and Poultry Farm For Sale—80 acres, one mile from station; all necessary improvements; one-half acre of berries brought $60 last year; good for all fruits; also good for truck farming; four acres in grain; two fine springs; timber and grass; on public road; healthy. I live here. Come and see me while crop is growing or write. Price only $250. No better home for the money anywhere. C. C. Schupbach, Chadwick, Mo.

A nursery plant and fruit farm of 25 acres inside of city of 11,000 in central Missouri. A1 shape, 7-room house with basement and furnace, greenhouse and office, large barn, enough nursery stock (50,000 apple) growing to more than return purchase price, living well, three cisterns, cherry orchard netted $360 last year, for sale on account of blindness of owner. Also 62½ acres 2½ miles from town, 10 acres apple orchard, 3 acres pears, 43,000 grafts planted this spring new house and cellar, living water in plenty, on the most traveled road into town, 5 railroads visiting Kansas City, St. Louis, Des Moines, Quincy, Omaha, etc. Address C. P. B., care Western Fruit-Grower St. Joseph, Mo.

WANTED—Position by married man (no children), to rent or work for wages on fruit or stock farm. Wife will cook for a few men. Competent; references. Address E. D. Jewett, Woodburn, Sunflower County, Miss.

Sweethearts, wives and mothers, our remedy is guaranteed to permanently cure the whiskey and beer drinking habit. Safe, sure and harmless. Can be secretly given without the patient's knowledge. Complete instructions for 25s. Brune Supply Co., Kansas City, Mo.

MAKE YOUR OWN
PURE CEREAL FOOD AND COFFEE.
Two new receipts for cereal foods, one new receipt for cereal coffee. Full directions for 50c. Send today. Economy Food and Coffee Co., Battle Creek, Mich.

KIDNEY and BLADDER Specific permanently cures, also strengthens and produce a healthy condition of the generative organism. Cannot introduce it into drug stores as it would lose strength in time Obtain it direct from me fresh and it will positively cure you. Price 90 cents. Prof. Wm. Bress, Western Medical Institute, 535 North Main Street, Wichita, Kansas.

Send 25c silver for full instructions how to keep your chickens and poultry houses free from lice. No kerosene, insect powder or poison; cheap as dirt; will pay $1 for every 25c received where order doesn't give satisfaction. For 25c extra will send my twenty years' experience on how to raise early and late cabbage. J. T. Smith, Sabula, Iowa, Box 121.

HAY FEVER and ASTHMA CURE Immediate relief guaranteed. Money refunded. Used 20 years in private practice. Trial package 10c silver. Sigma Med. Co., Box 248, Hanover, Pa

Agents Wanted Liberal terms. The Plattsburg Nursery, Plattsburg, Mo.

Birds and Fruit-Growers.

In the April number of the Western Fruit-Grower appeared an article by Mr. Frank Yaw, condeming certain birds for eating his fruit and closed with the statement: "I do not kill or allow to be killed birds that don't eat fruits. I destroy only the five classes of birds that I have mentioned. All other birds are welcome to my fruit farm."

The five classes of birds he named as eating his fruit, are the oriole, the bluejay, the catbird, the thrush and the mockingbird. With the exception of the bluejay he could hardly have selected four classess of birds of more merit than those mentioned. I dare say that these birds will destroy more insects during a single season than any four classes of birds he allows the freedom of his premises. I will also assert without fear of successful contradiction, that a pair of either of the four classes named above will destroy insects enough during the season if allowed to nest upon his farm undisturbed, which insects would result in the destruction of more fruit and vegetables than the birds. The nestlings will eat their weight in insects each day. If it were not for the birds of the world it would be well nigh impossible for man to raise any fruit at this time, and should they become entirely extinct the insects would eat every green plant upon the face of the earth in ten years.

Mr. Yaw says that he does, "not kill or allow to be killed, birds that don't eat fruit." I presume that he thinks more of the hawks, owls, and buzzards, than of the sweet singing thrush, oriole, catbird and mockingbird. It would be a desolate place indeed, with such bird friends as he would have about him. Again, he must have had a great many birds or very little fruit for the birds he mentioned to have eaten all the fruit on his farm during one season. I am inclined to think the increased age of the trees or the propitious season had much more to do with the yield of fruit last year than his "shot-gun policy." I know very well that all of the birds he named and some others eat fruit at certain stages, but am fully convinced of the fact that these birds are better friends than enemiesof the fruit-grower. It will not do to condemn the birds because they love fruit, nor should we be so selfish as to wish their destruction for visiting our orchards. I think the birds deserve all the fruit they eat and if there is not enough fruit on the farm for both birds and farmer, then let the farmer plant more trees. If I were going to select five classes of birds to kill, becouse of their evil doings to mankind, I would certainly choose from those not eating fruit, such as owls, hawks, etc. A single pair of hawks will eat more than one hundred young chickens while rearing their nestlings each year.

Mr. Yaw censures the well-to-do city people for killing the innocent insect eating doves while decrying the destruction of the song birds he so much abhors. If he would study the habits of the birds more closely, he would find that the doves and pigeons are about the only class of birds, aside from the birds of prey, that do not feed their young or themselves upon ininsects, at least scarcely any at all. I was raised on the farm and studied the birds as well as the fruit business and think they go best together. The most desolate place I have ever seen was destitute of all birds, except such as Mr. Yaw seems to want protected.

E. C. ROBERTSON.

Dickson, Tenn.

I, as a fruit-grower, wish to enter a most emphatic protest against Frank Yaw in April issue, on his destroying our best insectivorous and song birds. First among them is the orchard and Baltimore oriole, destroying worms, flies, caterpillars, and even collecting cocoons to feed its young. The cat bird, brown thrasher (or thrush) and our peerless mocking bird, all first cousins and our greatest singers, pay us back tenfold for the few cherries or berries they may take. I, too, have a cherry and peach orchard; 700 of the former and 500 of the latter, with a row of 35 American mulberry trees on the west side which get ripe before the cherries and last until the Early Richmond, Montmorency and Eng. Morellos are gone Certainly they mix cherries with their diet, but who begrudges them a comparatively few cherries for the good they do? I am reminded of an ignorant American among the Mexicans in the Rio Grand Valley near El Paso, Texas, who some ten years ago applied to the writer for some strychnia (used for poisoning "coyotes") with the remark that he intended it for mocking birds, as they were eating his grapes. The request was refused, but he secured the deadly poison elsewhere and destroyed a great many and as a result has had no grapes for the past five or six years and his loss has been a thousand times that of the grapes taken in former years by the mocking bird, as there are but few other birds in the valley.

I have nothing to say in favor of the blue jay, as he is a heartless, cruel rascal, but a beauty and second to our cardinal or "red bird." The English sparrow I utterly detest and kill him as quickly as I would a venomous reptile or insect. As a writer has said, this bird will eventually inherit the earth, unless there is a bounty placed on his little pugnacious head. He and the German carp should have staid at home. If Mr. Yaw will place a number of poles, ten or twelve feet long, (cane poles) among his cherry trees, say one to 10 or 20 trees, lean them forty-five degrees and tie a small Chinese kite to the tops with two to four feet of string, these kites resemble a hawk and are kept in motion by a very little wind (the cost is but 5c or 50c a dozen) and the result will surprise him. I cannot agree with Mr. Yaw as to the dove eating insects, as, like the pigeon, it is a grain eating bird. Outlaw cats, thoughtless boys, hogish sportsmen and last but greatest of all destroyers of our birds, are the plume and market hunters, who should be suppressed by law, and our horticulturists and agriculturists are the people to see that the laws are enforced. W. A. IRVIN.

Springfield, Mo.

SPLIT HICKORY

YOU CAN BEND IT BUT YOU CAN'T BREAK IT.

This heading is used in one of the advertisements of the Ohio Carriage Manufacturing Co., of Cincinnati, Ohio. They manufacture and sell to the consumer, the now celebrated "Split Hickory" line of vehicles. Unlike any other carriage concern in the country, selling direct to the user, they advertise and sell this special line only. They do not sell to jobbers or dealers; so if you want a "Split Hickory" vehicle the only place where you can buy it is from this concern. They make the bold statement that there is no other line of vehicles sold for anywhere near the money that is as good as the "Split Hickory," and they offer as a proof of this assertion what one would consider a most fair proposition, namely, that they will send any of their vehicles anywhere in the United States on 20 days' free trial. If at the end of 30 days the purchaser is not satisfied, he can return the vehicle and will not be out one cent of money as they pay the freight both ways in case the job comes back. One thing is evident and that is they have abundant faith in their goods. Their elaborate new catalogue, which is just off the press, illustrates and fully describes over 100 specially designed exclusive patterns. In this catalogue they show tests which they have put their vehicles to prove the the strength of the material used in their construction. Two of these illustrations we here rheproduce. They also reproduce photographs of people who have purchased their vehicles and have given them testimonials. This is a very clever way of proving that the testimonials are genuine. The vehicle illustrated in this article is their top buggy which has all late improvements and the price is a genuine surprise. Any of our readers who are thinking of buying a vehicle this season, will do well to write to this concern for their catalogue, which is mailed free upon application. Address Ohio Carriage Manufacturing Company Station 46, Cincinnati, Ohio.

NOTE.—This firm offers some fine buggies as prizes to people who send names of persons about to buy a carriage or harness. You should send for plan and list of prizes. You might win one.

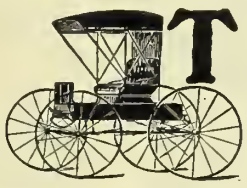
It has been a question with a great many people who wish to buy incubators, whether the hot-water or the hot-air machines were the best. It seems the Sure Hatch Incubator Company have compromised the two ideas in a combined hot-water and hot-air incubator; the good features of both kinds and the bad features of neither kind. We have never heard of a combination machine, except the Sure Hatch, and it occurs to us that the idea is logical and practical. In most things there are two extremes, and no doubt it does not stop with the incubator question. Hot-air prhahly being too dry and blistering and hot-water being entirely the opposite, but the modification of both seems to us as striking a happy medium in the two methods. The Sure Hatch Co. informs us that they are making a price to fit the summer incuhator buyers. They also write us that for those that are fixed for winter broilers, winter broiler raising pays, but for the great mass of poultry raisers the summer broilers are more profitable. Insomuch as there is evidently a shortage of marketable poultry, it would seem that now would be the right time to begin. Address Sure Hatch Incubator Co., Clay Center, Neb.

$250.00 CASH REWARD

—	A	U	—	—	—	—	—	—	—
V	I	—	—	—	—	—	—	—	—

There are ten letters, represented by ten dashes, omitted from the above words, and when the proper letters are supplied the completed words will describe the Picture and form a correct solution of the Riddle.

CAN you rightly guess what words are represented in the above picture? If you can you may win **A CASH REWARD.** This is a new puzzle, and if you are smart you can, with study, give a correct answer and win some Cash. **We do not want one cent of money when you answer this Study.** You have absolutely nothing to pay for a guess, so the cash you receive will be clear gain. Only one answer is allowed you, so **Try and Win.** This is a free contest and contains no element of chance and we positively guarantee to pay all patrons **Cash** for every correct solution. If your answer is correct you will hear from us promptly. Address, **Home Remedy Co.,** 426 Temple Building, Montreal, Canada.



THE modern way of doing business by selling direct from the factory to the consumer has evidently come to stay Its economy is so great that no one who has once discovered how much can be saved by such direct dealing would be willing to go back to the old fashioned way of buying, in which profits must be paid to two or more middlemen. But the new business method more than ever requires confidence in the fairness and strict honesty of the business firm and a reputation above any suspicion of unfair dealing.

The success of a firm having this kind of a reputation is illustrated in the career of The Columbus Carriage and Harness Company of Columbus, O., which has sold an immense number of high grade carriages and harness by a plan of shipment direct from the factory, insuring every buyer against loss or dissatisfaction. By their plan a carriage user in Maine or Texas can buy far cheaper than at the local store, and with equal opportunity to return any article that is not satisfactory. To aid buyers at a distance this firm has prepared a large catalogue which shows by accurate illustrations and careful description exactly how and of what material each vehicle is constructed. This catalogue is a valuable guide to buyers of carriages and harness and even those who may intend buying elsewhere should have a copy on hand to consult in order to be informed what the fair factory price is before the profits of jobbers and retailers are added on. Anyone can obtain this catalogue free by writing to The Columbus Carriage and Harness Company, Columbus, Ohio.

HARNESS FOR USE IN ORCHARD CULTIVATION.

One of the objections which many persons have offered to cultivating orchards has been that unless great care is exercised tree trunks will be scarred by harness and whiffletrees. This objection has been overcome by the use of the Baker Traceless Harness, manufactured by the B. F. Baker Co., Burnt Hills, N. Y. This harness is recommended by those who have used it, for cultivation can be extended up against the tree with no danger of "barking" the trunk. The catalogue which this company sends free illustrates the way in which the harness is used, and also contains many testimonials from orchardists and others. A. T. Erwin, assistant horticulturist Iowa Experiment Station, says: "We have been using the Baker Traceless Plow Harness in the orchards upon the experiment station grounds, and find them very satisfactory for the work."

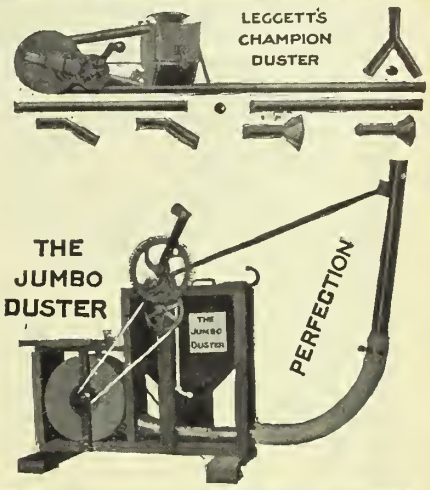
We hope readers of the Western Fruit-Grower will see the ad of the Baker Company in the Western Fruit-Grower, and write for catalogue. When you write don't fail to mention the Western Fruit-Grower.

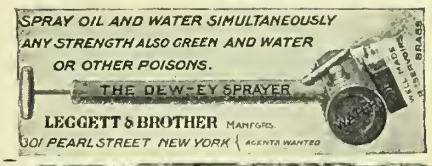
Latter day merchandising has many houses in the mail order business, "selling direct to the consumer" and "saving agent's profits." A very large per cent of these are themselves taking the agent's profits, having themselves received the goods at second or third hands. Among this smaller class, who in truth and in fact manufacture their own goods and sell directly from the factory to the consumer, is the famous old Elkhart Carriage and Harness Manufacturing Co., of Elkhart, Ind. These people handle only goods of their own manufacture, and they have no jobbers, agents, or middlemen. Everything you purchase from them comes directly from their factories. There is no doubt about agent's commissions being avoided in their case. The mammoth proportions to which their business has grown proves that the people realize that there is a great saving to them in dealing direct with this firm. Every kind of light vehicle and harness is in their line. They publish a large illustrated catalogue which our readers should have. They will be pleased to mail it to any one writing for it.

We take pleasure in calling attention to the ad of Missing Link Apple Co., Clayton, Ill., elsewhere in this issue. It is a fact that too little attention has been paid in the past to the trees from which nursery stock is propagated, and all will rejoice that more attention is being paid to this work, and especially by the nurserymen. The Missing Link Apple Co. deserves credit for working along this line, and we will watch with interest the outcome.

Conrad Hartzell of St. Joseph, Mo., has received a diploma certifying that he was awarded a bronze medal for exhibit of apples at Buffalo last year. Medals will be furnished to only those who pay for the engraving of the same.

TO MAKE COWS PAY use Sharples Cream Separators. Book, "Business Dairying," and catalogue free. West Chester, Pa.





St. Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand Typewriting Penmanship, Telegraphy and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. School in session throughout the year. Catalogue free. E. E. GARD, Proprietor.

St Joseph, Mo.

FRUIT TREES

$1.00 WILL BUY

30 Budded Peach Trees, best varieties, $1.
50 Good Concord Grape Vines, $1.
100 Asparagus Plants, 25c.

Our catalogue mailed for the asking. It quotes a general line of fruit and ornamental trees; best quality; low prices.

Address GAGE COUNTY NURSERIES, Boz 633, Beatrice, Neb.

GINSENG

The money maker of the 20th century. Place your orders for seeds at once. Book of instructions sent on receipt of 10c. W. S. GENTRY, Seymour, Mo.

Rose Comb Brown Leghorn Eggs—18 $1.00, 50 $2.25, 100 $4.00; Barred Rock Eggs, 18 $1.00; Bronze Turkey eggs, 11 $2.00. Rocks score to 93; Leghorns to 4, by Russell. John Tharp, Mt. Sterling, Iowa.

Platt's Commercial College

Ballinger Bldg., 7th and Edmond
ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

SEVEN GREAT SCHOOLS

Chillicothe Normal School
Chillicothe Commercial College
Chillicothe Shorthand College
Chillicothe Telegraph College
Chillicothe Pen-Art College
Chillicothe School of Oratory
Chillicothe Musical Conservatory

Last year's enrollment, 678. $130 pays for 48 week's board, tuition, room rent and use of text books.

For Free Illustrated Catalogue, address
Allen Moore, Pres., Box G, Chillicothe, Mo.

PURIFY YOUR BLOOD!

To have health during the SUMMER when hard work makes extra demands on the bodily strength the blood must be pure, the digestion good and the vital organs free from bilious impurities. NOW is the time to purify your blood, cleanse and regulate the system and put yourself in shape for the season's work. YOU NEED

PRICKLY ASH BITTERS

The Blood Purifier THAT PURIFIES THE BLOOD

and Cleanses and Strengthens the Stomach, Liver and Bowels.

During the Winter months many persons acquire a constipated habit as a result of strong diet, insufficient exercise and disorder in the stomach and digestive organs. This condition causes the system to become clogged with impurities which get into the blood and these impurities accumulate so fast that in a short time the blood can no longer furnish the proper nourishment to maintain health and strength. Under the poisonous influence of blood impurities the body grows gradually weaker and at last becomes an easy mark for the diseases that are prevalent during the Summer and Fall. In Southern latitudes this usually takes the form of chills, yellow fever or some kindred miasmatic disease; in the North, typhoid fever, pneumonia, consumption or kidney troubles. The admirable cleansing and strengthening effect of Prickly Ash Bitters is especially appropriate in cases of this kind. It strengthens the kidneys thereby assisting the extraction of the impurities in the blood. It stimulates the torpid liver so that bilious accumulations are thrown out of the system through the bowels. It tones the stomach and helps the assimilation of food, by which process the blood is enriched in life and strength giving elements.

SOLD EVERYWHERE AT $1.00 PER BOTTLE.

Refuse all substitutes said to be "Just as Good." This remedy has stood the test of years of successful battling with disease. Get the genuine. It will produce the results you desire. 19-ounce bottle for $1.00.

It Puts the System in Order.

Begin the work right—Cleanse the blood of impurities and get your kidneys, liver and bowels in fighting trim. Through the use of Prickly Ash Bitters, the world's greatest System Tonic and Blood Purifier, you can lay in a stock of vim and energy that to the busy worker is more valuable than gold. Prickly Ash Bitters is a successful remedy for Kidney Disease and disorders due to Bad Digestion. Relieves Bloating after eating, Wind on the Stomach, Indigestion, Heartburn, Nervous Weakness, Faint Feeling, Dizziness.

Half a wineglassful of Prickly Ash Bitters night and morning for a few days, will drive out that drowsy half-sick feeling, sweeten the breath, remove sallowness and restore the clear complexion and ruddy hue of perfect health. Persons who use it during the Spring will enjoy health, vigor and cheerfulness through the hottest weather.

Good Advice to Farmers.

Not every reader of the Western Fruit-Grower knows Edwin Taylor of Edwardsville, Kan. We wish every one did. We wish this, because Mr. Taylor is a farmer who gets a great deal of enjoyment out of life—or he seems to, at any rate—and not every farmer does this. He raises two kinds of fruit—potatoes and apples—for he insists that potatoes are fruit. At a farmers' institute at Tonganoxie, Kan. Mr. Taylor gave a talk on "The Way Out." The subject doesn't mean anything, but what he said was very timely and important. After referring to the fact that many farmers are going ahead like a ship under full sail, while others, starting from the same point, are stuck fast, Mr. Taylor said his talk was directed to an imaginary "average farmer," who, while he may not regard himself as being "in the hole" exactly, still recognizes that the room for improvement is the largest room that he has.

"The average farmer, I have come to believe, considers his calling to be a sort of Hobson's choice, while his family look upon country living as a thing to be endured until it can be cured. And the first point I want to make is that the farmer who does not appreciate having a farm, both as a business proposition and as a good place to live, is making a mistake. And the hanker he has on him for what he imagines is going on in the city, viz: something easy in the way of work, and 'out of sight' in the way of society, is based on an entire misconception of facts. I have lived a good deal in the city myself, and I assure my farmer friend that if he regards farming as 'slow' he will find everything open to men of his capital and experience in the city also slow.

"If he engages in business in town let him watch or the big fish wil swallow him. City business is cannibalistic. There is a steady stream of little merchants, little manufacturers, little enterprises, little newspapers going into the ravenous maws of the big concerns and making the meat on which they feed. Should our friend go to the city and 'accept a position,' as the rural chronicle may put it, let him be sure that the job will last him and that some strike, or merger, or depression may not take his living away and leave him presently with a pair of willing hands without a place to take hold. In my mind there is something wrong with the man who, being in possession of his piece of land where he is his own boss, where food and raiment if plain are sure, where he has without quest or uncertainty that salt and solace of life, an abundance of work. Who, having this independence, would willingly put it at hazzard, risking a decline from this high estate to become a mere cog in the great industrial machine, his very name perhaps shriveling away at last to a brass tag bearing a number. It is true that some people in town handle more money than some farmers, but it costs more to live by a sidewalk than in the country. It is true that there is more company in town than in the country, but that does not mean, necessarily, that you will have more friends there. Where people are the thickest they are also sometimes the farthest apart. With the rural free delivery bringing you the morning paper just like city folks, and the telephone with which you can buy and sell by wire and borrow and lend and gossip and send for the doctor, the isolation, so long the pastoral bug-bear, is crossed out of the farmer's dictionary.

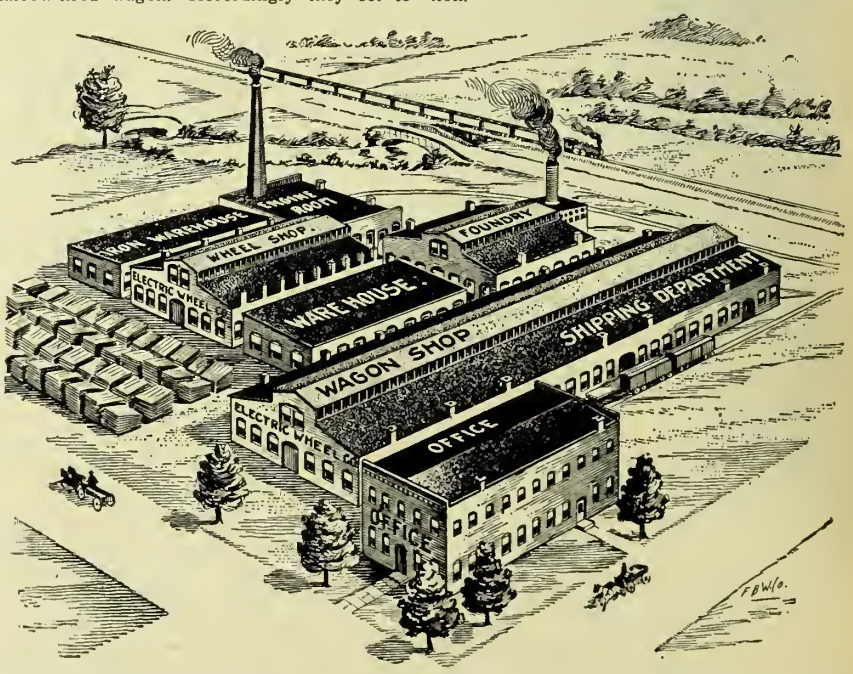
"But it is when you come to the small folks, the boys and girls, that the farm has the city worsted. Put what measure you like on them, compare them as to their waist measure, or chest measure, their chubby hands, or their round, red cheeks, or their appetites, or their energy, and the city children are not in it with our country children. It would break up a bank to supply paint enough to give the city girls the color, the health-tints that our farm daughters carry in their faces, and it would break up two banks to provide watchmen enough to keep the city boys in as good company nights, as their country brothers keep, because, if there were no other reason, where it is half a mile to the nearest neighbors there is no place so handy to go as to go home. If I seem to dwell unduly on matters like these it is because I am fully convinced that the average farmer does not get out of his farm any large percentage of its potential results, either as a business or as a dwelling-place."

There were other things which Mr. Taylor said, all of it good, but this was the first point—and one of the most important, we believe—that he made. He advised farmers to use their heads more and their hands less, to count the cost of everything, and to systematize all work; to not haul inferior stuff to market, nor to devote $5 worth of time marketing $3 worth of produce. All this was told as only Mr. Taylor can tell it—but the extract we have made was that part which impressed us as being the part most needed.

THE GROWTH OF AN IDEA.

Those inventions which are most useful are the outgrowth of an actual need. This has striking illustration in the low-down handy wagon and broad tired steel wheels manufactured by our advertiser, the Electric Wheel Company, of Quincy, Ill. Observation and experience taught these people that an overwhelming amount of labor was wasted on the farm by the use of the old style high-wheeled narrow-tired wagon. Accordingly they set to work to develop a wagon that would save the farmer's srength and his horses; savej his time, the expense of extra help; save the fields and the public roads, and largely the interminable cost of repairs. The result was their celebrated line of Electric Handy Wagons and Electric Steel Wheels, which have gained such wonderful popularity in every part of the country.

This happy thought was made an accomplished fact by the use of the low, broad-tired steel wheel, which incidentally gained the second great end, tha tof securing lighter draft and preventing the rutting of fields and meadows. That the draft is from twenty to a hundred per cent lighter on a broad tire than a narrow, on almost every condition of road and field, has been abundantly demonstrated, while the preventing of ruts in the field and the making of smooth, even highways by the rolling and packing of the broad tires is a matter which needs no demonstration.



The growth of the business of the Electric Wheel Co. in recent years has been something phenominal. The original factory was soon entirely inadequate. Accorddingly the new buildings were begun. The completed plant is shown above. Readers of the Western Fruit-Grower who are not fully acquainted with these goods would do well to write for a catalogue and learn something which will surely be to their individual profit.

Mention Western Fruit-Grower.

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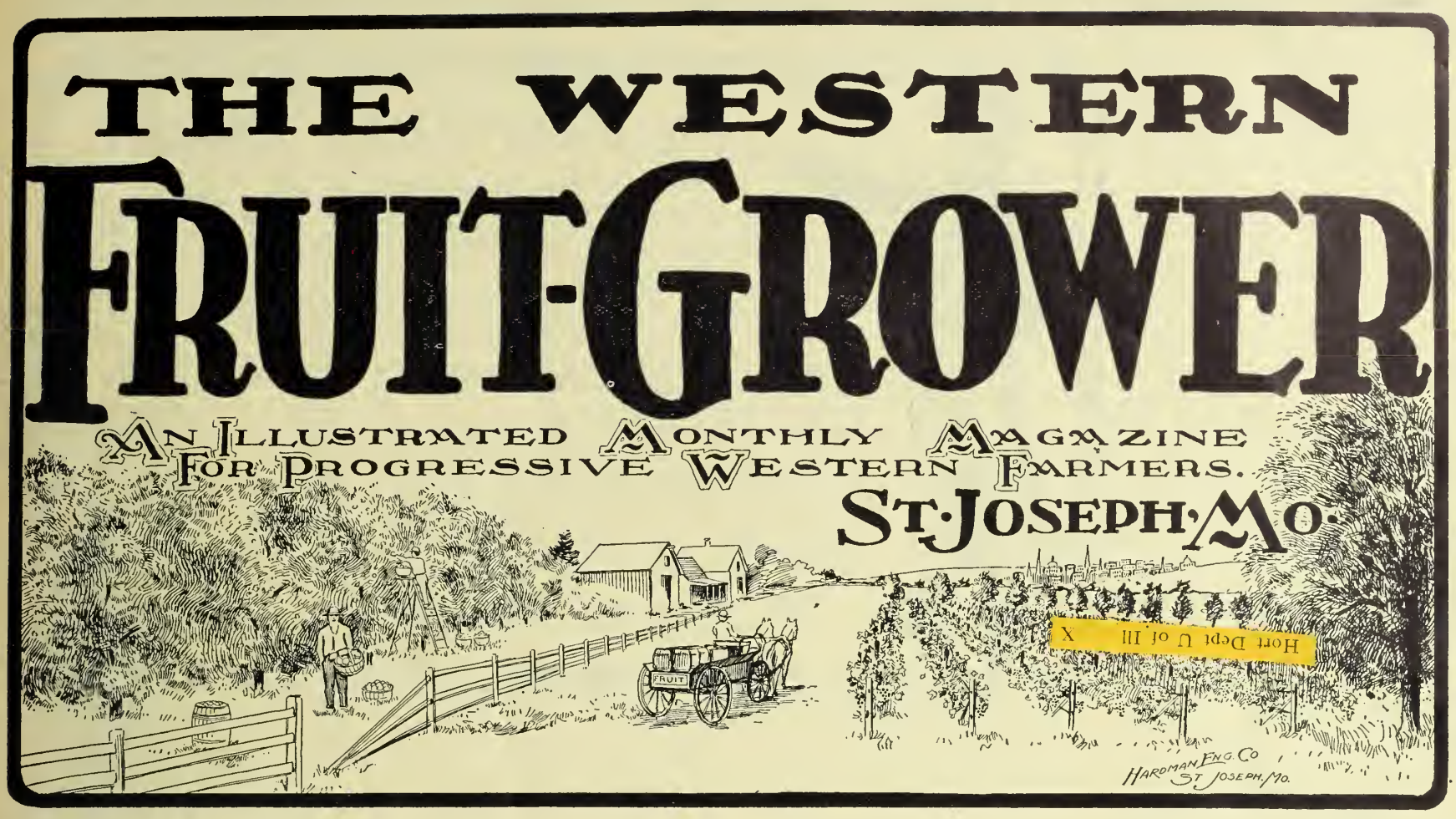


Hort Dept U of Ill X

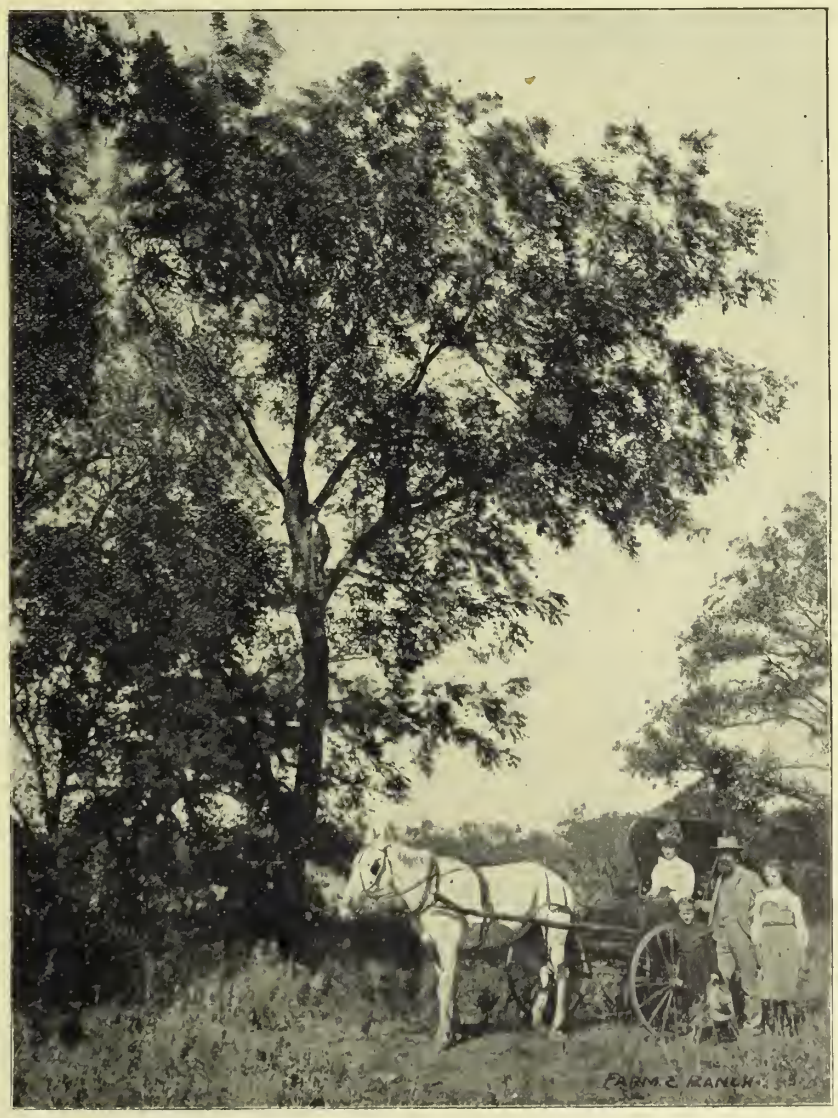
Some Facts in Regard to Pecan Culture

THERE is an increasing interest in nut culture, and especially pecan culture, in sections where the nuts can be grown, and many orchards would be planted if it were not for the fairy tales which are told concerning these nuts. A fraud by the name of J. L. Andres, or J. L. Andrews, who also uses the firm name of Southern Pecan and Seed Co., has done much to bring pecan culture into bad odor, but there is really much to be said in favor of it in certain sections.

In a recent issue of Texas Farm and Ranch, Mr. H. A. Halbert, whose writings are well known to readers of the Western Fruit-Gower, had a common-sense article on this subject, and to correct some of the wrong impressions which exist we publish part of it herwith. The cut is kindly furnished by Farm and Ranch, from which the article is taken:

"The question most important to one contemplating a pecan orchard are: First—Is my land suitable? Second—Which shall I plant—the young trees or the nuts for best and quickest results? Third—How long after planting before the trees will begin to bear, and what will be the yield? Under these heads I will discuss the questions and give my opinion and conclusions in all due deference to any who may differ from me. The difference of opinions may arise from difference in conditions due to widely different localities and environments.

"I write principally for that portion of Texas west of the Trinity river and not the timbered belt. Where timber grows in abundance I think the pecan will grow more readily than it will on the prairie portion of Texas. Now to the above questions: First—All land on which grows any species of hickory (Carya), to which family the pecan belongs, or even the walnut (Juglans), a kindred species, I think it will be safe to start an orchard. Where these natural evidences are wanting it is best to pry into the bowels of the earth for at least fifteen or twenty feet by means of examining the walls of wells and banks of creeks and deep ravines in the vicinity to see the conformation of the earth, for the pecan is a deep feeder. It matters but little how rich or poor the top soil for the first few feet. It is the character of soil from five to twenty feet that finally decides success or failure. It is a question of water more than fertility of soil within these limits. If the soil consists of a substance that will neither absorb nor retain moisture, such as slate, chalk or concrete material, etc., and has no vein of water within 15 to 20 feet from surface it will be useless to plant an orchard. There will be an ultimate failure, however the young trees may start of from fertility of the top soil. While on the other hand, if the subsoil consists of sand, clay or other substance that will absorb and retain moisture, you can plant with assurance of success.



A pecan tree growing in the orchard of H. A. Halbert, Coleman County, Texas. The nuts from this tree captured first premium in the pecan contest open to the world at Waco, Texas, December, 1901.

"Second—If quicker growth could be obtained by planting young pecan trees than from planting the nuts, I would say by all means plant them for obvious reasons shown under next heading. But will they? The only trees or stock I could recommend would be those obtained from some reliable nurseryman who has been careful in selecting and planting the finest paper shell nuts or budded from the paper shell varieties. And as this stock is but a year or two old when placed on the market it is naturally retarded in growth by transplanting, and the tap root is more or less injured so that the nut planted at the same time will pass it in growth in a few years. Besides, the nuts are much cheaper and little or no risk. A sound pecan will germinate as sure as a sound grain of corn, but of course be longer at it, while I have always found it very difficult to get a young tree to grow when transplanted and have heard others complain of the same things. If for parks, yards, etc., where plenty of water is available and only few trees are wanted I would buy the higher priced trees that have been budded from some variety. But for large orchards, would buy the nuts, the best of which can be obtained at $1.00 to $2.50 per pound, often less. Whereas the young trees, not budded, are worth from 10c to 50c each. This will make an acre cost to plant it in trees from $5 to $25 counting 50 trees to acre. Buy the best nut possible, consider more the thinness of shell, fullness of kernel, and prolificness of tree than size. While there is no more certainty of securing the identical nut planted than there is in planting the peach seed to get the identical peach, yet, like the peach, some will come true and occasionally one superior. From these good ones buds can be procured in the same orchard free of cost, with no risk of transportation, to bud the trees that bear inferior nuts.

"Third—We find various opinions as to when young trees begin to bear, all in accordance with the experience

of the respective persons, ranging from five to ten years. I have heretofore claimed that age cuts no figure as it does in fruit trees, and further experience teaches me that I am right, and that the size of the tree alone determines this period. Congeniality of soil and good attention determines the size more than the time and brings about the bearing period. Whenever this size and height is obtained, if in five years, the trees will bear; of not reached in 100 years the trees will not bear. Hence the importance of promoting quick growth by every means possible in selecting the most congenial soil and planting that which gives the best send off of nut or young trees. The size of tree in bearing often varies. But upon these general limits you can depend. No young tree is apt to bear until it reaches a height of eight feet and has a well grown trunk and heavy top, and every tree is apt to bear by the time or before it attains 15 feet in height unless crowded so as to run up like a fishing pole. The first fruits are very scant, two or three nuts to a handful on a tree. But after the tap root strikes permanent moisture the growth is very rapid as well as the increase in bearing. Twenty-four to thirty feet is a pretty and convenient distance to plant the nuts on uplands, but in river valleys thirty to forty feet. This gives room to cultivate other crops between rows, and the trees will not be too crowded when grown. The nuts should be bedded out in fall or winter like peach seed, and from the middle of February to March 15, after they begin to swell and often send out a tap root, place where permanently wanted. This method protects from all depredators, as rats, crows, squirrels, etc., as they can be bedded in layers in a box and kept moist in sand, and it insures a good stand, for all that failed to show signs of sprouting can be thrown aside and none but the sprouting ones placed in the orchard. When one does not feel like setting aside a portion of his tillable land for pecans the rough places on the sides of hollows and ravines and even fence corners are excellent places to plant. They need no special cultivation. All that is necessary is to cut grass and weeds immediately around the young trees for the first year or two to keep them from being smothered. This can be done two or three times a year at odd seasons when too wet to work crops. Fifty cents even invested in this way and fifteen or twenty nuts planted, and if only one or two succeed in bearing in ten years it will be the best expenditure of time and money possible. There is no farmer who owns his land but what can afford to spend more than this, and has suitable soil in creek bottoms that overflow, or broken land, or along his strings of fence, that he can plant to advantage and make it a paying investment, either in his lifetime or leave it as a rich legacy for posterity, who will rise up and call him blessed for 'a thing of beauty,' as the pecan tree really is a thing of beauty and is more apt to be a 'joy forever,' than what the poet may have had in mind, on acount of its longevity."

Ben Davis to the Front.

Ben Davis is not a popular apple in New England and New York, and the chief attacks on this variety come from there. But notwithstanding this, old Ben keeps going forward, and more trees of this variety are being planted than any other one sort. Some interesting statistics regarding the apple business in New England are supplied by Prof. F. A. Waugh of the Vermont Experiment Station, and they show the remarkable popularity of Ben Davis among those who are planting new orchards. The report submitted by Prof. Waugh shows the popularity of several varieties.

The Baldwin apple has been a prime favorite in the New England states, and especially in Massachusetts, but its vogue seems to be giving way somewhat before the merits of other varrieties. The following figures show the percentage of Baldwin trees in the orchards reported. The first column gives the percentage of bearing trees which are Baldwins, and the second column shows in percentages the proportion of Baldwins among trees too young to bear.

	Bearing.	Young.
Vermont,	5	10
New Hampshire,	63	58
Maine,	51	34
Massachusetts,	65	48
Connecticut,	61	79
Rhode Island,	47	64

The percentage of Baldwins is notably reduced in Massachusetts which has been the principal New England producer of this variety. In Vermont the proportion of Baldwins is greater among newly planted trees than in old orchards; but this has little significance since Baldwin has never been a leading variety in Vermont.

Rhode Island Greening, another New England favorite, does not make the showing which might be expected. The figures are as follows:

	Bearing	Young.
Vermont	18	4
New Hampshire,	2	3
Maine,	5	1
Massachusetts,	4	1
Connecticut,	4	1
Rhode Island,	13	0

It will be seen that Rhode Island Greening has been practically ignored in the planting of young orchards, even in Rhode Island.

The figures for Northern Spy are as follows:

	Bearing	Young.
Vermont,	7	9
New Hampshire,	1	3
Maine,	5	7
Massachusetts,	1	0
Connecticue,	3	0
Rhode Island,	2	0

These figures show that Northern Spy is holding its own, or perhaps gaining a little, in Northern New England; but that it has been discarded in Massachusetts, Connecticut and Rhode Island.

When compared with these three standard New England varieties, the figures for Ben Davis are particularly instructive. They follow:

	Bearing	Young.
Vermont,	10	48
New Hampshire,	1	1
Maine	5	23
Massachusetts,	0	13
Connecticut,	5	3
Rhode Island,	6	15

In other words, Ben Davis outnumbers all the varieties previously named ly every state. In Maine and Vermont the drift toward Ben Davis is especially pronounced; while even in Massachusetts, it is rapidly gaining on Baldwin.

These figures are made up from reports secured from several hundred of the leading apple growers in the states named. While it would be too much to claim that they prove any particular proposition, they certainly indicate some important changes in the apple growing business of New England.

David S. Corbin, Herald, Okla., writes that prospects are excelent for a large peach crop there. Oklahoma is coming to the front as a fruit section.

H. B. Hillyer reports that the new truckers' association at Bowie, Texas, now has a membership of 150, and more to come. Texas is surely coming to the front in fruit-growing and truck-farming.

F. E. Buxton, Sulphur City, Ark., writes that he has trees of both Black Ben Davis and Gano, and he cannot detect any difference. He believes the varieties and Etris, Reagan and others of that clas are identical.

New York will spend $25,000 to fight San Jose scale The great sums of money which are required to fight this pest once it is established emphasize the importance of keeping it from gaining a foothold in any section.

T. M. Culver, who is one of the most successful peach growers in the Southwest, with 'arge orchards in Oregon County Mo., estimates that his crop this year will amount to 200 cars. Almost twice that many cars will be shipped from the county. Mr. Culver gives it as his opinion that in that section of the country, at least, peaches should not be planted on newly cleared land. Remove the forest trees and grow one or two crops of corn and then plant your peach trees, is his advice.

A bill has been introduced in the Ohio legislature to provide for standard-size fruit packages of all kinds, from apple barrels down to berry boxes. The bill provides that all short packages shall be so marked, and, as in case of the New York law, each quart berry box must be marked, one mark on the crate not being sufficient.

It may not be generall known, but Texas tomatoes bring more money than Texas peaches. In 1900 245,700 crates of peaches were grown, which brought $171,900, or an average of 70 cents per crate. In the same year 247,500 crates of tomatoes were marketed for 80 cents per crate, or nearly $200,000. Roland Morrill, who is planting a big peach orchard in Texas, has a large acreage of tomatoes this year.

O. P Foale, Table Rock, Neb., who has had poor results from spraying with paris green against canker worms, writes to advise our readers of his failure. There may hve been some special reason why Mr. Foale failed, but the fact remains that paris green will kill canker worms just ar certain as it will kill human beings. If the mixture is properly made, the ingrediants are pure and the whole is properly applied, there can be no doubt as to results.

BUY CARRIAGES AT LOWEST PRICES.

In this issue appears the advertisement of a firm which should appeal to every reader of the Western Fruit-Grower who is in need of a new buggy or vehicle of any sort, or any kind of harness. It is the ad of the Ohio Carriage Mfg. Co., Station 46 Cincinnati, Ohio. This firm makes the reliable "Split Hickory Vehicles,' which are known everywhere as the best class of vehicles made anywhere. Not only are the vehicles of the best possible make, but they are sold by the manufacturers direct to the consumer, saving the profit of the jobber and the retailer. The saving of this profit means cheapening the cost of any vehicle or harness to our readers, and we hope our readers will send for catalogue, which is free. Address Ohio Carriage Mfg. Co., Station 46, Cincinnati. Ohio.

Be Your Own Dealer

Why not buy goods at wholesale prices, and save from 15 to 40 per cent on everything you use? You can be your own dealer if you wish, and buy your goods direct from the manufacturer with only one small profit added to the manufacturers' cost, and what is better, our $2,500,000.00 stock gives you a chance to select goods according to your own ideas. Our stock consists of everything for everybody, in all styles and at all prices, and all qualities except trash. We will not sell trash at any price.

Our big 1000-page catalogue tells the story. It quotes over 70,000 different articles and has over 17,000 plates and illustrations to help you understand just what the goods look like. This catalogue is free, but we ask you to send 15 cents to partly pay the postage, as the actual postage is 22 cents. Send 15 cents in either stamps or coin and we will forward our complete catalogue, all charges free. This catalogue can be found in the homes of over 2,000,000 thinking people and should be in yours also. Why not send for it to-day?

We Want You to Try Us

to send us a trial order and test our ability to satisfy you in every particular. We have special catalogues on almost every line you can think of. Tell us what kind of goods you are interested in and we will send you, absolutely free, any of the following illustrated catalogues quoting wholesale prices. Be sure to mention the one you want. If you want our complete catalogue, send 15 cents and ask for catalogue Number Seventy.

Furniture	Silverware
Farm Implements	Carpets and Rugs
Vehicles	Underwear
Sewing Machines	Groceries
Hardware	Bicycles
Crockery	Baby Carriages
Glassware	Dry Goods
Stoves	Photographic Goods
Sporting Goods	Notions
Harness	Books
Drugs	Shoes
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Men's and Boy's Suits (both Ready-Made and Made-to-Order) including Samples.

Montgomery Ward & Co., Chicago

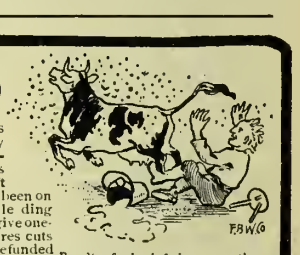
The house that tells the truth. 10

RIPPLEY'S Fly Remover,

Results of using Ripley's Fly Remover.

Lice Killer and Disinfectant

removes flies and mosquitoes instantly. Kills lice on hogs, horses, cattle, and in poultry houses, etc. **Healing to any sore. Non-Poisonous.** Harmless to man or beast. Acts as a disinfectant; and promotes health. Don't experiment, buy a reliable repellent, which has been on the market for years. Endorsed and used by le ding breeders and dairymen. Cows sprayed with it give one-fourth more milk, and increase in flesh. It cures cuts and acts as disinfectant. Money refunded if animals are not protected. 1 Gal. will protect 500 cows. Write for our catalogue, it explains how $8.00 per head can be saved during the fly season by using **Ripley's Fly Remover.** Order early. Price, cash with order, 1 gal., $1 10; 2 gal., $2.00; 5 gal., $4.50; 10 gal., $8.00; ½ bbl. of 30 gall., $28.00; *Ripley's Special Compressed Air Hand Sprayers* to apply same. 1 qt. tin pump, 65c; 1 qt. all brass, $1.35; 1 qt. glass jar tin pump, 90c. *Ripley's 5 gal. Galvanized Sprayer* for applying Fly Remover on large herds and for spraying gardens and Trees, etc, $5.50; 4 gal. galvanized, $5.00; 5 gal. copper, $8.00; 4 gal. copper, $7.00. Breeders' Supply Catalogue mailed free.



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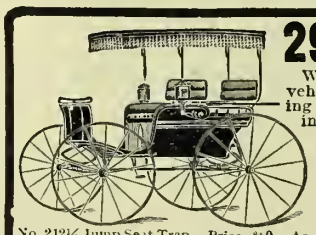
29 YEARS SELLING DIRECT.



No. 212½ Jump Seat Trap. Price, $40. As fine as sells for $40 to $50 more.

We are the largest manufacturers of vehicles and harness in the world selling to consumers, and we have been doing business in this way for 29 years.

WE HAVE NO AGENTS

but ship anywhere for examination guaranteeing safe delivery. You are out nothing if not satisfied. We make 195 styles of vehicles and 65 styles of harness. Our prices represent the cost of material and making, plus one profit. Our large free catalogue shows complete line. Send for it.

No. 152 Top Buggy has ⅞ inch Kelly rubber tires and rubber covered steps. Price, $73 00. As good as sells for $90.00 more.

Elkhart Carriage & Harness Manufacturing Co., Elkhart, Ind.

THE WHOLE WORLD ADMIRES

Split Hickory Vehicles,

and the best of it is, the closer you examine them, the better you like them. They are built right all the way through and they have a hundred special features—"little things" that add to their comfort, safety and durability found on no other. We sell

DIRECT FROM THE FACTORY

You save all agent's profits. We ship on approval. You don't keep it unless you think it a bargain. Send for our Vehicle and Harness catalogue. It will save you money.

OHIO CARRIAGE MANUFACTURING CO., 46 W. Broad Street, Columbus, Ohio.

DO YOU IRRIGATE?

If you have land lying above the irrigation ditch, you can make the water power pump your water. Will elevate 25 ft. for every foot fall used.

Rife Hydraulic Engine

will carry water to any distance and force it over any obstacle, at any height. No attention. No expense. Write to us. Tell us distance you wish to carry water and we will send you complete plans and estimates. All Engines SOLD ON THIRTY DAYS' TRIAL. Send for free catalog.

RIFE ENGINE CO., 126 Liberty St., NEW YORK, N. Y.

Major Frank Holsinger's Department

CRICKET.—As I visited the farm today I saw a lot of boys on their knees, under the direction of a superintendent, in a portion of our strawberry plantation.

"Picking berries over there?" I asked.

"No," said my son George. "That's a new game of cricket. Come over and see how it's played."

A game of any kind other than work in a berry field was a novelty, so I went as directed.

There were eight boys, each of whom had a quart box two-thirds full of crickets, representing about three hours' work. The boys, on hands and knees, would stir the straw, when the crickets would be uncovered, the boys catching them, being careful to kill them. They had thus secured at least a peck of the insects from not more than an acre of ground. The amount of mischief this one-fourth bushel of insects could have accomplished is easily conjectured, when you remember that they eat only the seeds of the berry, puncturing one here, one there.

"I feel certain that we will lose 200 crates of berries by the crickets," said Gerald, "and we shall keep after them as long as the catch is anything in proportion to the present."

"How do you pay these boys for their work?" I asked.

"We allow them as much as they could earn picking berries."

This game of cricket was truly a novel one, and the boys seemed to enjoy it. By carrying their catch in the boxes, one could see what they were doing, whether they were active, and which was the most expert. Surely this game of cricket, as played by the boys, is one requiring action, having beneficent results. The game will be continued from day to day, or while the game lasts—or at least until all the berries have been gathered.

(Now, a real thrifty German would have taken those crickets to the poultry yard, and thus the chickens would have enjoyed the game. Don't waste the crickets, Major.)

Fruit Conditions, May 23.—There has been quite a change in fruit prospects since my last. Plums which had set a full crop have vanished until they are as scarce as the peach. Why? Well, now, I am perplexed. True, I could give reasons, but then I might be mistaken. The blooming season was ideal; no rain, no frost, with weather perfect. "Never saw a better blooming time for fruit," was remarked by many. The plum seemed to set quite full. Now where are they? Gone. I incline to the belief that the reason was in a want of vitality in the tree, caused by the drouth of last summer, followed by a low mercury in winter, and the trees coming into spring weakened by these causes.

Grapes, too, are very disappointing. Present indications are for not above 25 per cent of a yield.

Of cherries, Early Richmond promise 10 per cent of a crop. The later sorts 50 per cent, but are dropping badly. I think that those remaining will ripen.

Pears are much better than expected. In looking over my trees this morning I am confident of a full crop, hail, blight or other unforeseen circumstances not preventing.

Apples are not going to be a great crop, yet in some orchards they are promising well. With us York leads with Ben Davis following.

As to small fruits, conditions vary. We are now marketing the early varieties of strawberries. They are by no means what we could wish—small, knotty, measley. Why? A new enemy has appeared. Myriads of crickets infest the plantation. They attack the fruit, eating the seeds, and thus mutilating the berries. I have no doubt that we will lose hundreds of crates by these "imps of darkness." When we were irrigating the berries, as the straw became saturated with water, they would be freed from their snug quarters in the straw mulch, and could be seen hopping for dry places.

Yes, we have been irrigating for the past ten days. The berries showed a splendid promise. An inch of rain on the evening of the 21st caused a shutdown in our pumping operations. Whether or not we shall resume depends on weather conditions. The old plant was found inadequate and a three-inch main took the place of the one and a half inch main of last season. We can throw four times the quantity of water we did last year.

Raspberries are showing up well, also blackberries on some plantations. The early sorts, Early Harvest, etc., were badly winter killed. The new plantings of fruits, both large and small, have done well. The drouth was not so severe as to retard their growth where cultivated.

And such an opportunity to cultivate seldom happens as we have had the past spring.

Here we are enjoying all the good things of life, and a few days ago were fearful of a drouth. We are enjoying this day, May 22, potatoes from our own garden, the tubers being as large as hen's eggs. The recent one-inch rain makes possible the best crop of "spuds" we have grown in years.

J. S. K., Stillwater, Kan., asks: "Will Major Holsinger kindly explain the cause of my apple trees dying? A number are dead, while others are in very bad condition. Often the bark at the base or near the collar of the tree is dark colored, and being dead it separates from the tree sometimes, a narrow strip of blackened dead bark appearing often, especially on the southwest side. Some varieties are more injured than others. It is becoming alarming. Can anything be done to counteract or arrest these conditions? We await reply in the Fruit-Grower with interest."

The injury noted is one widely recognized, as no section in the West seems to be free from it. The causes are many. In some there seems to be a constitutional weakness, and such trees should not be planted. The trouble exists in nearly all our varieties of apples to a greater or less degree. Now as to the why? Undoubtedly the low temperature has much to do with it, as the severe freezing causes the bark to burst from the tree and the bark dies, while in some cases only a portion is separated from the trunk, causing the dead bark to only partially girdle the tree. Again, sunscald is apparent, as you notice the injury most on the southwest side of the tree. This injury is usually done in August, especially in very dry seasons. The hot sun scalding the side upon which it acts. Often this diseased condition invites the flat-headed borer, which deposits its eggs in the "scalded" or injured bark, affording them a suitable place to develop. Sunscald can be avoided by shading the southwest side of the tree or by wrapping with gunny sacks or any other substance that will prevent the action of the sun. After a tree is once injured in this way it is next to impossible to do anything for it. "An ounce of prevention is worth a pound of cure"—in this case 100 pounds.

W. K., Chillicothe, Mo., wants to know the proper time to cut post timber so that it will last longest.

Much has been claimed for the time in which timber should be cut to last. I confess my inability to answer. It is well known that many timbers cut in winter are ravaged by the beetles. This is apparent in the hickory, locust, osage, et al. These timbers, to last, should be cut while the sap is up. Hickory will last well if cut in summer and the bark peeled. The beetles do not bother then. But to keep well, hickory must be kept off the ground, as it soon rots if exposed to moisture. Other trees, I doubt not, are similarly affected. Last spring we cut a lot of white elms after they were in leaf. They were poles from four to six inches in diameter. They were in the way. We trimmed them, leaving them on the ground to rot. Last winter we determined on their removal. We found those elms as hard as a bone. They were firm and solid and looked as though they had lots of "last" to them. We removed them to the woodpile, and I must say they made good fuel. I know that had they been cut while dormant they would have rotted, as they lay on soft, wet land. The trouble to get timber cut in summer is that men do not like to chop wood in the woods in summer. They will do this work only in winter. Hence post timber is nearly always cut in winter.

The Missouri Valley Society in Session.—What an ideal day for an outdoor meeting of fruit men! The place, too, in keeping with the day. Possibly there is not a prettier spot in Kansas City than is the home of Mr. Goodman, secretary of the Missouri State Horticultural Society. Since our last meeting here, a year ago, Walnut street has been forced through his commodious grounds. It seemed almost a desecration to see the destruction of the beautiful firs, pines, elms and other trees to make way for the city's progress and the opening of her thoroughfares.

In years agone Mr. Goodman had planted these trees symmetrically, or with a view of having a driveway in a beautiful curve, imitating the park. The engineers had others ideas, and Walnut street had to go straight through, regardless of trees, buildings or anything else. As Mr. Goodman has still several blocks left, he is by no means handicapped for elbow room, and when tax time comes around we suspect it costs him quite a sum to keep up this beautiful property.

What a pleasure these meetings afford our fruit-growers! The social feature, for instance. Here are those who formed acquaintance more than thirty years ago—and thirty years is a long time in these busy days. Young men and women then, just starting the battle of life. Now, old men and women, with their families grown—yea, a new generation in their grandchildren; for my own house was represented in three generations, a granddaughter of eleven years being present. Thus Time, ever relentless, makes inroads on us, changing, ever changing.

At first we thought this to be an old people's meeting, as we met our veteran Judge Thompson and Dr. John Arthur, both octogenarians. Then came "Bud" Evans. "Bud" is past the time allotted to man. Then that veteran pomologist, to whom I ever doff my hat, for he has given us one of our best apples—W. G. Gano. Then there was G. F. Espenlaub, an acknowledged authority in every part of the horticultural realm; Asa Chandler, who succeeded as a horticulturist late in life, after many failures in other enterprises, and who at last found his place in the field of fruit-growing.

The wives of these men, contributing to their success, are not to be forgotten. These are the veterans who have come up out of much tribulation and are now reaping their just reward.

There were many of the younger crowd—"kids," like W. D. Cellar, the Chandler boys, Wheeler, Holsinger boys and others. Then there was W. H. Barnes, secretary of the Kansas State Horticultural Society, fairly beaming like a great big Kansas sunflower. Oh, there were so many good people, distinguished people, people whom we love to meet and greet, that we must leave them and tell about the meeting.

The society proceeded to business after the dinner. And the dinner was in keeping with everything else—up to the high water mark. Mrs. Goodman never "plays second fiddle" to her lord, and her arrangements are always perfect. The dinner was a great success. George Holsinger presided over the meeting, Secretary Chandler in the secretary's place.

Mrs. T. Lee Adams' paper on "Poetical Imagery Derived from the Vegetable World" was a most pleasing affair. We failed to get this paper, as Secretary Goodman had already secured it, and it will be buried in the state report, where few will care to disentomb it. Why, oh! why, are these papers not given to the people, in their live horticultural journals, to be relished and appreciated? The papers could then go into the horticultural reports for preservation.

Prof. J. S. Hunter of Kansas State University had an excellent paper on "Report on Entomology," which appears in this issue, for we rescued it from the fate of Mrs. Adams' paper. The paper on "Botany" by Prof. M. C. Finley was up to date and worthy of dissemination.

We rescued a splendid paper by J. C. Evans from oblivion and submit it for the consideration of readers of the Western Fruit-Grower, for they can read it with profit.

In the discussion of the papers we asked Colonel Evans whether his paper was intended for South Missouri or for the entire state. He replied, "For the whole state."

We then suggested that lime in our soil is so general that in our experiments we failed to see any results from applications of lime. In South Missouri the supply of lime is defi-

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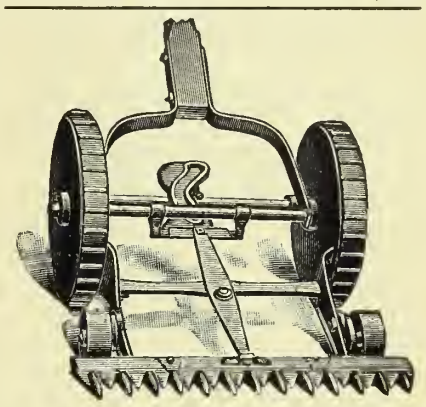

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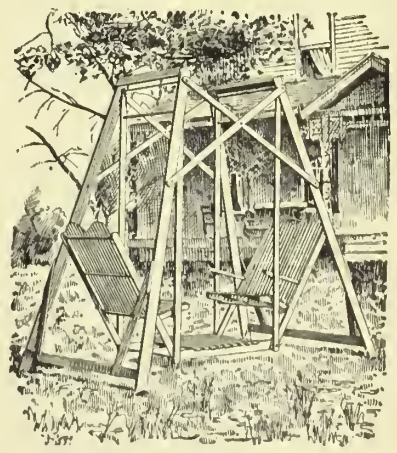

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cient in the soil, and we could see the necessity for its use. Colonel Evans then said we had misunderstood the reason for which the lime is used; it is to assist in the decomposition of vegetable matter.

We showed a tree protector which had been sent us for examination, and which struck as being valuable in protecting the tree from ravages of rabbits, borers, etc. The protector commended itself as a practical tree protector, but the expense, we thought, would hinder its extended use.

Mr. Cellar, ever on the alert to down us, said: "Now, I protest against Major Holsinger's bringing in patented traps and recommending them for use. During the past he has objected to the wooden veneer wrappers, and yet they cost only one-fourth the cost of this protector. He has in the past recommended wrapping trees with paper, which costs absolutely nothing."

W. G. Gano: "I was induced to use old copies of the Fruit-Grower for wraps, and half my trees were ruined by rabbits, as the paper was not of sufficient length." (We warned Mr. Gano against this use of copies of this paper. It is not intended for that purpose.—Ed.)

Colonel Evans recommended the Kansas City Star as being of proper size. The boys evidently had it in for us.

Strawberries were reported a short crop; "only two pickings in South Missouri," said Colonel Evans. Raspberries and blackberries promise better. Apples promise one-half crop. Plums practically a failure. Early Richmond cherries very light, later varieties fully half a crop. Peaches at Olden are very shy, and none north of there. Secretary Barnes reported apples promising well in Kansas. North three-fourths of the state has no peaches, while the southern tier of counties promise a good crop.

The display of apples at the meeting was fine. We noticed some very fine Winesaps and Willows, shown by Mr. Lowmiller of Parkville. They had been kept in dry dust and sand and were quite good. The next meeting of the society will be held at Gashland and will be a strawberry meeting.

FRANK HOLSINGER.

Green Manuring.

So much has been said and written on this subject that it is difficult to discuss it without wore or less repetition, yet its importance demands that all that is worth saying should be said at the risk of repeating what someone has said before. It has been asserted that a constant application of commercial fertilizer will impoverish the best of our lands in a few years, unless the necessary humus is restored to it by plowing under green crops, or in some other way. Barnyard manure contains this necessary element and all the other elements of fertility necessary to the growth of most plants, but it is not always at hand; besides, it is expensive, too much so for any except the gardener and small-fruit grower. The ordinary farmer and the man who grows fruits on a large scale must find some less expensive way to keep their land in a proper state, than commercial fertilizers and barnyard manures.

A soil may have an abundance of all of the other elements of fertility, but cannot produce without the necessary humus. The moisture must circulate to bring it in contact with the roots. The soil must not be too open nor too compact. If too open, water cannot rise; if too compact, it evaporates too rapidly from the surface. If a soil is inclined to bake or settle after a heavy rain, it is evidence of a want of that essential, humus, and such soil cannot produce the crops it should. Nature, by the decomposition of organic matter in the soil, produces this humus, which makes the soil light, prevents packing after hard rains, and helps the circulation of both water and air in the soil, which is essential to plant growth.

In the mind of the average farmer it is yet a question as to what is the most economical means of restoring this important element to the soil. There are quite a number of leguminous plants, besides many others, that may be turned under at the proper time and serve the purpose as green manure, but if we are to sow some crop especially for green manure we would choose one of two or three of the legumes: Red clover, crimson clover or cow peas. The former is one of the best plants we have for green manure, and has been largely used for a long time in the Middle and Northern States for that purpose, but has the disadvantage of being too slow of results. The farmer, as a rule, cannot afford to wait two years while his land is being renovated. Crimson clover gives quicker results, but is not so desirable in other respects. As a hay crop the red clover is far superior to crimson clover, and is perhaps the better fertilizer of the two. But as a soil renovator the cow pea has no equal. It is quicker in results, richer in fertility, and more economical in every respect as a green manure than any plant known to the American farmer. It has fewer enemies in the way of insects, fungous and other diseases of domestic plants than any we grow; it contains more of the elements of fertility and in better proportion, than any plant. If turned under as green manure, it gives quicker and better results; it will thrive on land too poor to grow clover, and will stand more drouth than any of our farm crops. It grows quick and of planted thick enough is never taken by weeds. As a hay crop, all farm animals will eat it readily and thrive on it with no other feed; to feed down to hogs, after the crop has matured, it scarcely has an equal—even corn will not fatten stock faster or go further. It has been said, and with a truth, that a field of cow peas is a poor man's bank.

If land is badly run down it is a good plan to sow to cow peas about the 10th of May (here) and plow under and re-sow the 1st of July. Then when the pods are fully formed, feed down to hogs and let it alone until spring, when it will be ready to plow and plant to any crop. By this method no time is lost, and the land is well fertilized, and the hogs are fat. The fact that a crop of cow peas has grown on the land means that its fertility has been largely restored, so that the importance of turning under a crop is not so great as it is with any other crop.

It is well in plowing down a crop of peas or any other plant to broadcast fifteen to twenty bushels of lime to the acre before plowing. The lime will facilitate the decomposition of the vegetable matter and bring about more immediate results. It sometimes is convenient and is advisable to turn under a crop of weeds and grass, but it must be remembered that results will be much more slow and the land will not be ready to put in a crop for a much longer time than if it were clover or cow peas.

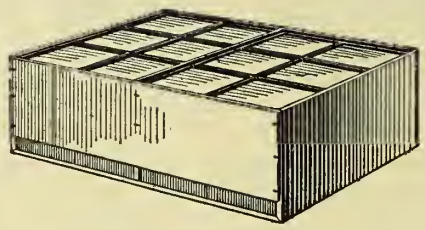
Then, let me repeat what has been told you before: For the land's sake, plant cow peas. J. C. EVANS.

Enemies of Horticulture.

The Missouri Valley Horticultural Society is thirty-four years old, and this is its 408th session. I am safe in saying that there are some of its members here before me who can recall the time when little thought was given in the deliberations of the society to the subject of injurious insects and fungous diseases. The codling moth, peach tree borer and strawberry leaf roller and a host of others were all strange terms to the early horticulturist. Then the apples were scabby because of excessive drouth or a prolonged rainy season—each theory possessing strong advocates. Potatoes rotted because they were planted at the wrong time of the moon.

These changes which we know have come about, this increase of certain kinds of enemies and fungous diseases, are due to changes in Nature's relations. Nature endeavors to maintain an equilibrium between plant and animal life. Man, the predominant type, brings together large areas of the plant food of one insect, and here this insect finds conditions which favor its rapid multiplication. Its destructive possibilities become more apparent than when directed against those forms of plant life from which man gains his sustenance. Man has brought about this condition not only by planting large areas of fruit trees, but also by removing the native forests, the homes of birds, the friends of man. Not only has he disturbed the homes of the birds, but too frequently he has ruthlessly taken their lives.

After all, in Nature, the terms "enemies" and "friends" are relative ones. From the standpoint of the tree-grower the canker worm, which deprives the young tree of its foliage, is an enemy. Dame Nature, however, is as much interested in the development of the caterpillar as she is in the welfare of the tree or of its grower. The equilibrium of Nature is broken up, and man is the most disturbing element. Wherever he goes he changes existing conditions, and intricate com-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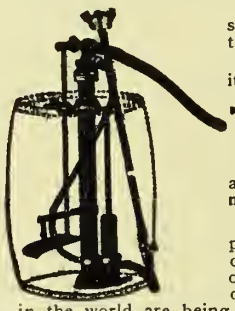
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plications follow. Wallace, in endeavoring to show the far-reaching effects of man's relationship, states that the more old maids the heavier the clover seed crop, for the maids protect the cats, which destroy the mice, which rob the nests of bumblebees, which pollinate the clover blossoms.

We may profitably inquire into the causes which have given rise to the changes which have taken place since the organization of this society. Why is it that we have more insects than we had formerly?. Then the apple industry of this valley was doubtless represented by a few seedling trees growing in the "clearing." In those days the codling moth would have had to wing its weary flight for many miles before it found an apple blossom to receive its egg. And with a bird-inhabited woodland, few, if any, would ever have reached the orchards. Today it is different. The orchards in this valley are as close together as the patchwork on a quilt. And by planting large areas to one class of fruits we have rendered the conditions highly favorable to the rapid multiplication of the enemies of that fruit. The apple worm finds abundant food in the vast expanses of orchards, and its parent makes no flights, exposes itself to little or no danger in quest of blossoms on which to lay its eggs. We further facilitate the spread of this same apple worm by shipping it in the apples in the barrels into new and unexplored regions.

Commerce has been a great factor in the increase and distribution of insect life. Of the seventy-three insects which are classed as highly injurious, thirty-seven are foreigners — aliens, who, upon introduction to this country, have found conditions highly suitable to their rapid increase, influences which were present to keep them in check in their native countries being absent in this country, gave them freedom to increase at an unheard-of rate. A study of the modes and possibilities of transportation and introduction of insect life is further profitable in determining the desirability of species injurious to the interests of man. And if such inimical forms are introduced, it may be possible to determine the original home of the inimical form and to seek their natural enemies. The question, then, becomes, Can they be safely introduced to prey upon the injurious insect? As an illustration: The fluted scale some years ago promised to greatly curtail and possibly destroy the citrus trees of California. It was found, after investigation, that this scale was of Australian origin, and that in its native habitat a ladybird beetle, both in larval and adult state, preyed upon this scale. This beetle was sucessfully introduced into California, where it has curtailed the increase of the scale, and consequently its damage to the citrus industries.

The struggle in life and for life is not confined to the human kind. The pine tree does not grow in the high and rocky mountains because it wants to, but because the oak and blue grass force it to do so. They monopolize the fertile valleys. A few years ago there was a cry raised against the planting of soft maples because of the prevalence of myriads of maple worms. Where are the maple worms now?

The presence of maple worms in such numbers furnished food for other forms of life, especially other insect enemies of the maple worm until these enemies increased in such numbers as to check the rapid multiplication of the maple worm. Now the maple worm is in the minority and the enemies are liable to succumb for want of food, then the maple worm may trouble us again only to be turned down by the replenished host of its enemies.

The progeny of a single fertile female San Jose scale insect for a single season, not reckoning mishaps, is over three billion individuals. The queen of the honey bee hive during the working season deposits from two to three thousand eggs daily. Five hundred eggs daily would be a small average for the females of the insect tribe. If all these eggs were to bring forth individuals and these individuals and their progeny were to continue the reproductive process, how long would there be sustenance for such myriads? It has been estimated that if the eggs of the common blowfly should develop and each of its progeny should find the necessary conditions for growth and development without loss or destruction, the people of the city in which this might happen could not get away soon enough to escape suffocation from an atmosphere filled with flies. Such conditions do not exist. Why not? Are there certain persons detailed from each community to prevent undue multiplication? If all these forms were to appear the food supply would soon be exhausted. The facts are that the percentage of eggs which develop into mature forms is very small. Unusually favorable conditions sometimes occur to permit a goodly percentage of the eggs to hatch and attain maturity. At such times we have plagues. The multitudes of maple-worms and grasshoppers which sometimes appear are illustrations. But these are not of regular occurrence. Since, then, all insects do not reach maturity, what determines which ones shall succumb and which ones shall live? "All live who can." It is evident that there must be strife for existence; that among insect forms as well as animal forms there is a struggle for existence—a struggle which for the greater part is unconsciously carried on by the individuals concerned. Some are destroyed by mere accident. Aside from this the struggle takes place: (a) Between individuals of the same kind, contending for necessities of life, as grasshoppers and grasshopper, "a struggle between fellows." (b) Between insects of different kinds, the one endeavoring to devour the other, as grasshopper with parasitic fly or predaceous beetle, "a struggle between foes." (c) Between insects and conditions of life, as the grasshopper and the unfavorable winter climate or the chance of securing proper nourishment in the early days, "a struggle with fate." To those who live there must be accredited some characteristics not possessed by those who perish. If such characteristics protect or favor the life of the individual this characteristic will tend to remove the individual from the intensity of the struggle.

In his observations the horticulturist should at all times attempt to reach the proper point of view; that is, the causes and effects. For instance the short sighted fruit grower is sometimes prone to overestimate the evils attending his vocation; some are wont to recall "the good old times" when none of these pests existed. These fruit-growers forget that in those times there were no orchards and that the apple industry was represented by a few seedling trees growing about the pioneers' log cabins. The farmer likewise sometimes becomes disconsolate by reason of the unexpected attacks of the invading insect hordes. There is behind these attacks some cause. The farmer has probably continued to raise throughout a series of years upon the same ground, the food plant of the invading insect. Had there been frequent rotation of crops this state of affairs would have been avoided.

In our study of injurious and beneficial forms it becomes essential that we acquaint ourselves with the life histories of the insects which affect us either beneficially or otherwise, in order that if a check need be made we may be aware of the most vulnerable point of the injurious insect. Many erroneous notions exist concerning not only harmless, but frequently beneficial insects. For instance, among the weird superstitious beliefs of childhood, and not infrequently of later years, the dragon-flies have a place. Nearly every boy will tell you that the chief end of this insect is to feed the snakes which lie in wait for him. It is a "snake-feeder" in the boy's parlance. Children generally are wont to fear this insect; they call it the "devil's-darning-needle." They have been told—and they believe it—that the long tail-like abdomen is the needle with which the insects sews up children's ears. Entirely at variance with these strange tales the insect is not only harmless, but highly beneficial, since one of its chief sources of food is the mosquito, with whose piercing propensities all are familiar.

In conclusion sometimes both the horticulturist and the entomologist are given to taking a dark view of the picture. When the unnatural increase of the insect enemy reduces the season's profit some are wont to recall the good old times when none of these pests existed. They forget that in those times there were no orchards, and the apple industry was represented by a few seedlings growing about the early settlers' cabin. Then the horticulture of the United States was in its infancy. Its magnitude today is well shown by the business interests represented by this association. Increased investments bring with them increased responsibilities. Great difficulties are the incentives for great efforts. The amelioration of our native fruits by the horticulturist has not been a work performed for pleasure, but forced upon him by necessity. The solution of entomological problems in horticulture will never be attempted in advance of the demands for their solution. Certain insect forms may rise to threaten the industry, but their appearance furnishes quicker, sharper action on the part of those vitally interested. There never can be a permanent menace to the business here represented. The greenhouse and the spraying pump are recent inventions and their possibilities are just coming to be understood. Our most injurious insect forms are foreigners whose native environments are as yet but little known. There is reason to believe that the influences which are potent in keeping them in check in their native habitats may be here used.

Some inimical forms which in the past have arisen to cause grave fears are no longer a source of anxiety; they have passed their meridians. Other forms arise in great numbers, a prey to parasites, which, having devoured their own source of existence, succumb and the host increases; so the alternate struggle proceeds. While this warfare has been going on in the United States, we have been advancing, until we are producing more and better fruits than any country in the world. Man, the dominant type in the struggle for existence, favors forms which favor him, and crowds to the wall species hostile to him. Under these conditions the achievements of the present inspire confidence for the future. S. J. HUNTER.

University of Kansas.

From Benjamin Buckman.

As Downing recommended bonfires to attract codling moths, I tried this remedy more than twenty-five years ago and found that for once Downing was mistaken. But since the moth-trap discussion has come up I wish to say a word or two. While I think the trap is valueless for most purposes, attracting many beneficial insects and failing to catch many injurious ones, yet I think that in some places it might be used to advantage. My trap which I used was a zinc pan, four feet square and eight inches deep. This was filled with water, a pint of coaloil and a large burner placed in the center on bricks. Now, certain kinds of nights are best for certain kinds of insects, but usually a warm, still, dark night brings more insects to the lamp than any other. Mosquitos are often caught by the thousand, but the greatest benefit, as I saw it, was from catching May beetles, for with a very large skimmer which I used each morning I have no doubt that I skimmed off a bushel of these beetles in a single spring—the catch for a single night being as high as two quarts.

Now, where these insects are very destructive they sadly defoliate some kinds of trees—notably chestnuts—in a single night, and were it not for the destroying of useful insects, I believe that four such pans as I used, in a 40 acre orchard would amply pay for the expense of using them and would eventually eradicate the May beetle and white grubs from the orchard.

I am saying this when the tide has turned strongly in all the papers against this trap. The figures given by the papers show only a small percentage of May beetles caught, but certainly such figures do not apply to this locality. Where one is intending to plant a strawberry bed, it would be well, in my opinion, to do one of two things, either first set these light traps for two or three year previous to planting, or second, make a hog lot of the ground for the same length of time. Moles destroy vast numbers of beetles and I have seen a large handful of the rejected wings in a single spot in a mole-run, but in turn the mole itself is often a great nuisance as all know—to be suppressed or encouraged according to where he is working.

Tying up grapevines with wilow as advised in the Western Fruit-Grower, is pretty slow work. I use No. 22 soft wire. It comes in twelve pound rolls, worth 10 cents a pound. I cut roll with cold-chisel or iron wedge into eight parts, which makes the pieces about three inches long. No damage is done when vines are wired to top of trellis, for if cane is strangled the wood will come out next year in trimming. Ties to lower wire should be loose. So far as I know I was the first to try this plan, but strings wore out with the wind too soon and I ventured to try wire. I was afraid of many drawbacks at first, but now would not go back to old way for five dollars a year.

BENJAMIN BUCKMAN.

Farmingdale, Ill.

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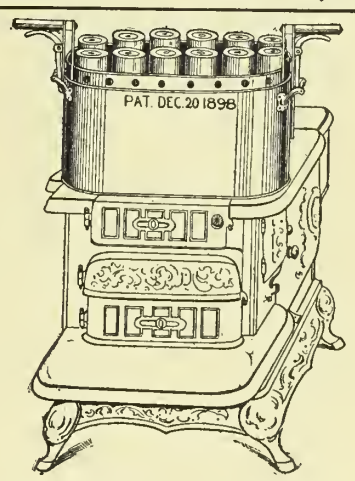

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Questions and Answers

Last month a bundle of apple twigs were received from a subscriber in Kansas, whose name was misplaced. The twigs were shriveled and dying, and the person sending them feared there was some disease at work. But Prof. Howard says there are no indications of a fungous disease, but the twigs appear rather to have been taken from a tree which was weakened by the drouth of last summer and the cold of December. Also some currant leaves were received from one signing name "Jap," Chicago. The leaves were covered with little red spots. Investigation did not show any signs of fungous disease at work as yet, and Prof. Stedman says he knows of no insect which makes spots such as those on the leaves. These two answers will likely reach the eyes of those who sent the specimens, although we had no record of the names of senders.

A. H. W., Dallas, Texas—Would you recommend the seeding down a peach orchard with alfalfa—the alfalfa to be cut and left on the ground as mulch? Our lands are inclined to wash and we should have a cover crop. Of course if I should ask your advice about sowing alfalfa, the alfalfa to be cut and carried away you would say no, but if all the grass is to be left on the ground you may decide differently.

Answered by Major Holsinger—I have never used alfalfa in the orchard. Have used red clover with profit, cutting and allowing to remain as mulch. Knowing the difficulties attending the growing of alfalfa, I would prefer red clover. To get a stand of alfalfa is very difficult, so much care being necessary. I believe more than one-half of all the alfalfa seed sown is lost by not understanding its culture. To succeed with alfalfa have soil well cultivated, using as much care as you would if you were growing onions; sow in August or September and chances are you will have satisfactory results. Remember that to succeed with alfalfa it must be cut often—at least four or five times, otherwise it will perish.

H. H. B., St. Louis, Mo.—Kindly furnish through some department of the Western Fruit-Grower, information on the following points. (1) Will the wrapping and tieing of newspapers around four-year-old apple trees to prevent sun-scald, result in any injury to the trees? (2) This spring I had 75 four-year-old Kieffer pear trees tha bloomed very freely and for a time bid fair to produce a large crop of pears, but finally dropped off until there were from one to three pears left to the tree, which will make the full amount they will produce this year. Last year about a dozen bloomed and the blossoms fell off in the same way. Will some one tell me the cause and remedy?

Answer by Major Holsinger: No, not if not too tightly bound. Use ordinary cotton wrapping cord. I have known this to injure young, rapid-growing peach trees, cutting them off when tied too tightly. The cord in a season rots and will break on the expansion of the tree. This is ordinarily the case. (2) Your Kieffer pears are too young to set a crop of fruit. Four years is not old enough. Young trees, rapid growing ones like the Kieffer, are almost certain to cast their fruit. I think you will find them quite satisfactory in a year or two. My Kieffers usually commence to bear at six or seven years and never fail after that. Have five trees eighteen years planted, that are quite full enough now and have borne every year since they commenced. Have patience. They will reward you in the end.

J. T. T., Grant's Pass, Ore.—Will you kindly tell me through the columns of your paper the best and quickest way to make apple vinegar that will be a good color?

Answer by Majr Holsinger: To make apple vinegar, the usual custom with us is to secure empty casks that have stored alcohol. We do this primarily because such barrels are cheap and easily acquired. Such barrels should not be filled more than two-thirds with pure cider, and should have all the air admissable, with warmth to insure fermentation. In no case should the room where the vinegar is kept be cold enough to freeze. To hasten fermentation, add two quarts of yeast. In this way you may have good vinegar in a few weeks. Without the yeast it will require the whole season. When the vinegar is of the desired quality, fill into other barrels for commerce or sale. Allow about one-tenth of the vinegar to remain in the old barrels, filling up with cider, which will hasten fermentation. Pure cider vinegar thus made is usually too strong to use without diluting—one-half water could be used and still have good vinegar, yet I prefer to make it pure, adulterating it to suit. Vinegar thus made usually has a bright amber color, such as is desired. Remember, that air is necessary to the life of vinegar. When vinegar becomes very old, it loses its strength and new cider should be added to have something to work on.

D. S., Scotch Grove, Iowa.—I am trying to raise some peach trees and have had them root-killed twice and will not try to raise any more on peach stock. (1) I wish to know how to cause my peach trees to form buds early enough to bud them on native suckers of plum roots. (2) I wish to try grafting some peach on native plum suckers next winter; how shall I proceed? (3) Should the grafts be planted below the splice or not?

Answer by H. A. Terry, Crescent, Iowa: (1) My plan would be to plant the peach trees on high ground, and let it be about as poor and thin as any in the state of Iowa and the growth will be less and wood will ripen up earlier in the season. (2) I have never had much success in grafting peach on plum roots, though if you have Chickasaw sprouts to work the peach on you may succeed very well. In any case they should be crown grafted. (3) I should recommend planting the grafts below the splice, say 2 to 4 inches.

S. P. C., Ogden, Utah.—As Kieffer pears are inclined to getting wormy in this part of the country, I would be pleased if you will answer the following qusetions in your paper: (1) How often in one season, and what kind of spray is supposed to be best to keep Kieffer pears from getting wormy? (2) What kind of spray is recommended for year slugs, as they are called here; a little black worm ¼ to ½ inch long, that eats the leaves, and if left alone will cause the fruit to drop off, and the tree to look as if it had gone through a prairie fire?

Answer by Prof. Stedman: Spray your pear trees just as you do apple trees for codling moth, as this is the same insect that causes wormy pears. These sprayings will also kill the pear slug. I advise the use of arsenate of soda or arsenate of lead instead of paris green. See my article on codling moth in January number of this journal and follow the directions there.

F. M. B.—I have an orchard of near 4,600 young trees in Southeastern Illinois, about half of them in third summer, remainder in second summer. This is our year there for 17-year locusts. My orchard is near about four acres of young timber. What can I do to prevent their raviging my trees? How would it do to take cheese cloth or some other cheap material and put covers over the tops till the danger from them is over? Please write me and tell me what to do to save my trees, if you can. Also, please give me address of some expert connected with the Illinois Experiment Station, and also the Indiana Experiment Station.

Answer: It is evident that spraying will not save trees from attacks of the locusts, and no satisfactory remedy is proposed. The New York experiment station says that small trees and bushes may be covered with mosquito neeting or some such substance, and be protected in this way, but for a large orchard this plan is hardly practicable, on account of the great labor and expense. Dr. S. A. Forbes is entomologist of the Illinois experiment station, at Urbana, Ill. The Indiana experiment station is at Lafayette.

E. S. N., Vallonia, Ind.—(1) Would liquid manure be practical to put around young fruit trees? (2) Would common lye soap rubbed on young trees, keep out borers, and would it hurt them? I mean take a cloth and rub the trees with the soap. (3) Is whitewash any benefit to fruit trees?

Answer by Major Holsinger: (1) Not if the planting is extensive; in a small way, yes. I would much prefer to place the manure upon the surface, working it into the soil. The humus would be lost to the soil by using the liquid form. (2) No, it would have no effect in keeping out the borers. It could not hurt the borers, as it would not reach them, as they work within the tree. It would not hurt them if it did, any more than to wash your own hands in or with it. It would, however, benefit the tree. Soft soap will be found beneficial in removing the scaly bark, giving the tree a glossy, healthy appearance. (3) White wash is of little value when applied to trees. It won't pay for the investment or labor.

A. B. M., Elm, Mo.—I send section of bark from one of my apple trees. What is the matter with it? The trees made a good growth last season, considering the drouth, and I am at a loss to account for the bark turning black.

Answer: The specimen of bark was much discolored and appeared to be dead. The injury was doubtless caused by the excessive cold weather last December, as we have seen many trees similarly affected, some being killed outright.

A. J T., Pleasant Hill, Mo.—The inclosed specimen is a wonderfully prolific plant in many sections of this state. It is a grass allied to the wheat family, and before heading affords fair grazing, but afterward it is left untouched by all the live stock. It is very fruitful in the number and productiveness of its seeds. It seems to exhaust the qualities of the soil that are adapted to all other plant-growing, but seems to enjoy its own succession of crops without any abatement. There are now broad acres in "Big Creek" bottom that were once a vigorous compact turf of blue-grass that are solely overstocked with this plant. Our tillers of the soil would like to know the name and

A. S. Hitchcock of the U. S. Department of Agriculture, replies: In answer to your letter of May 24th, I would say that the enclosed specimen of grass is a kind of barley grass or wild barley (Hordeum pusillum). This grass is an annual and in many places is a bad weed. It tends to come in pastures where the native grass has been driven out by overgrazing. It is not considered of any value as a forage plant. It furnishes some fodder when it is young, but soon matures and disappears later in the year.

J. B. L., College Springs, Iowa.—I am very much interested in your paper's discussion or presentation of the matter of bandaging fruit trees to catch the female codling moth. If it has no wings and is compelled to climb to get to the work of laying the eggs in the fruit, it seems to me that is the most practical scheme for defeating the pest. I have tried the coal tar, but a few hours dries it; so it is walking for her, but I shall use other things for second brood. Would be glad to see in the Western Fruit-Grower reports from experiments in that line. Also the latest knowledge from Miss Murtfeldt or other well posted persons as to changes and dates of changes in the life of the insect, and if in all the broods during the season the female is always wingless.

In answer to J. B. L., we will say he mistakes entirely the purpose for which the bands are applied to the tree. They are not put there to catch the moth at all, but only the larval form of the same. After the worm, as it is called, leaves the apple it seeks a hiding place in which to pupate, or to make the change from the worm state to the moth state. When such a place is found, the larvae, or worm, spins a cocoon, in which the change is made. Now, the bands are placed there to afford this hiding place, and they are helpful only because the worms can be found in one place instead of being scattered, as is generally the case. Of course, not all the worms will hide there, at best, but many of them will. The female codling moth is not wingless by any means, and once she emerges can go where she pleases—and this she does. It is the female canker worm moth which is wingless, and which climbs the trunk to deposit her eggs in the tree.

As to the dates at which different broods appear, there are several broods in this section, and it has been found that they are constantly appearing. As Prof. Stedman said in a recent issue of this paper, before the first brood has ceased to deposit eggs the second brood is about ready to begin work, and thus the brods overlap. We make the explanation concerning the bands at length, fearing others were of the opinion that the bands are to catch and hold the moths, or even the larvae. They are solely to induce the larvae to collect in one place, where the orchardist can kill all at one operation. But don't forget they must be killed after they get under the bands; if they are not killed, they will pass to maturity and will emerge to infest the fruit crop.

J. A. F., Guthrie, Okla.—What can be done to keep the soil from washing a hillside orchard?

This is an important subject, and we shall be pleased to hear from many of our readers. Growers adopt different methods, such as planting strips of clover, cow peas, etc. Tell us how you manage a hillside orchard.

W. L. M., South Kortright, N. Y.—Can you give me the names of a number of the best varieties of pecans and English walnuts adapted to the climate of Virginia? I want only the best varieties and a number of each. Where can scions for grafting these be obtained. Can the English walnut be grafted equally well on the black walnut? Can it be grafted on the butter nut stock?

This query was delayed, but E. H. Riehl, North Alton, Illinois, replies: The best varieties of pecans, valued in the order named, are Success, Stewert (Castineia), Van Deman, Russell, Capital, Pabst, Columbian (Rome), Eggshell and Jewett. Columbian is largest, but poorest quality; Russell very thinnest shell, many cracking as they fall from the tree. Success, easiest to crack and remove kernels whole. The above are Southern varieties and would not be hardy very far north. The English Walnut would probably be found more profitable than any other. It is hardy here, large trees bearing annually. They can be successfully grafted on black walnut or butternut. If interested parties will write to me, I will tell them where any of the above may be had.

S. H. P., Glenwood, Iowa—I am engaged in the fruit business to considerable extent. I would like some information in regard to the peach tree borer, which seems to be working in my trees quite badly. In what way can I best get rid of them? Also a white grub worm about one inch long and one-fourth inch thick with a reddish head, that works at the base of the tree; they work under the bark and also girdle the trees badly. Some of them half way around at the top of the ground. I applied unleached ashes around them, but does not seem to do much good. Have thought of applying coal oil, but thought it might injure the trees unless an emulsion is made with something else. What is your advice as to these, or what would be the best remedy?

Answer by Major Holsinger: The peach tree borer is a difficult problem. We have written of it so often that we wonder that all are not informed as to its habits and how to manage it. As the eggs are laid in this latitude from the middle of June to first of September, our method of fighting them is in the mounding of the earth about the trees not later than June 1st. This insures the depositing of eggs high up on the tree, so that in removing the mound in the fall the eggs and larvae may be removed. By scraping the collar of the tree not later than September 15th, 99 per cent will be thus removed. The mounding of the trees should be 6 to 12 inches and after a severe rain storm care should be taken to see that there are no cavities about the tree caused by the swaying of the tree in the wind. After a storm go over and with a hoe fill in about the tree so as to maintain the mounding about the tree. Some recommend wrapping with strong paper, wire, etc.; care should be taken to have the lower ends well covered. This is attended with much more labor than the mounding. An active man can go over and mound 1,000 trees in a day. He can remove the ground and with a good knife scrape nearly as many. It will be important, if not already done, to worm your trees now, ere you mound for the coming season. I have little confidence in washes for this purpose. Same claim that an alkaline wash to the consistnecy of a paint in which there is carbolic acid, will keep them away. Have had no personal experience with it; as it is accompanied with so much more trouble and expense than the mounding. You speak of a "white grub," an inch long and one-fourth inch thick. I know of no other insect that works under the bark or the peach than the one above. This moth can be readily known by the tranverse orange-yellow band on the abdomen of the female which is much larger than the male. Both have transparent steel blue wings.

J. C., Oak Grove, Mo.—I send some leaves from rose bushes which have been eaten by some worms, samples of which are on the ones sent. They destroy all my roses every spring. What is the insect, and what shall I do for they?

Answer: The rose leaves sent were "skeletonized," that is the upper portion of the leaves were eaten away, laving the veins and skin beneath untouched. It was the work of the rose slug, or the larvae of a four-winged saw-fly. The eggs are laid about first to middle of May, and hatch in a fortnight. The slugs are very destructive at times, their period of existence in caterpillar state being about three weeks. The remedy is to spray or dust the infested bushes with powdered hellebore or insect powder.

O. H. J., Chadwick, Ill.—I am having lots of trouble this spring. First there was a small worm on my raspberry and strawberry plants; they are about one-half inch long; they would roll up the leaves and surround the blossoms with a web and then cut the buds. What are they and what can be done to get rid of them? Will spraying kill them, and if so, what to spray with and when? Now the white grub is just killing lots of my strawberry plants in old ground, that has not been in sod for years; is there anything that will stop them? There is something wrong with some of my raspberry plants; the leaves on the young shoots are all red on the under side: it looks to me like rust.

Answer by Prof. Stedman: The larvae mentioned can be killed by spraying with any of the arsenical poisons just as soon as insects are noticed at work and before they have curled up the leaves too much. There is no way for you to economically kill the white grub in your patch without destroying the plants or removing them to other fields. The red rust on the raspberry plants can be prevented from spreading by spraying with bordeaux mixture.

F. E. L., Hickory Corners, Mich.—(1) I am anxious to know what kind of phosphate I can get and receive the best results from its application in helping my fruit trees in bearing the best quality of fruit. The land is good and has grown good, thrifty trees, but an enriching phosphate will doubtless cause a larger yield and better quality of fruit. (2) What time of the year are the eggs laid in the bark of peach trees which produce the borer? (3) Will the sprinkling of ashes around the roots aid in destroying this destructive worm? If this will not be effective, can you tell me of something which will? (4) Is there any way of discovering the yellows on peach trees before they appear in the fruit, and how may I discover them?

Answer by Major Holsinger: (1) Have had no experience with phosphates, our western lands not requiring its use. (2) The peach tree borer is active all through midsummer, laying her eggs in the bark at the root of the tree. (3.) No, the sprinkling of ashes around and about the tree will have no beneficial effect so far as the borer is concerned. The best method I know to prevent the ravages of the borer is in mounding the trees to secure the egg laying as high up on the trunk as possible; this to be done as early as middle of May. Then about the middle of September remove the earth from about the tree, scraping them. This will remove nearly all the larvae which as yet have not passed under the bark. Should any escape, a second search will reveal them. In mounding where conditions are just right, 1,000 trees can be gone over quickly. It is the simplest and the cheapest remedy I know. It is absolutely safe and effective. Try it. You will never try any other way when you have learned its simplicity and efficacy. (4.) We have no yellows in our western section. So much has been written on this subject from yellows-inflicted districts that you should not have any difficulty in determining the disease when apparent.

Below is Prof. Howard's comment on apple tree canker, which was referred to in our Aprol issue; in which a correspondent asked the treatment he should give an infected

"Apple tree canker is a fungus disease known by the technical name Sphaeropsis malorum, which is the same fungus which attacks the fruit in some sections of the state and is called black rot. Some varieties seem to be more susceptible to the attacks of the canker than others—that is, on the wood and perhaps also on the fruit. Any part of the tree above ground, with the possible exception of the leaves, may be attacked by the canker fungus. When the larger limbs, or in rarer instances the trunks, are attacked, the injuries are known as cankers. Such injuries are often quite conspicuous, since the bark becomes thick and rough, and the fungi that live on decayed wood soon gain a foothold, causing the parts to turn black. The injuries are often several feet in length. The fungus may live in the outer bark, but here it does little harm, and true cankers are formed only when it gains entrance into the growing layer beneath the bark. Under favorable conditions the fungus spreads until a considerable area of bark is destroyed. The limb may be girdled by the fungus, but when it is not, the borers, and fungi that live on dead wood, often complete the work of destruction.

"The remedy for canker lies in keeping it out of the orchard by proper sanitary measures, such as regular spraying and keeping the orchard cleaned up. The presence of this disease in neglected orchards, and its absence from nearly every orchard well sprayed and well cared for in general, is strong evidence that with most varieties the disease may be easily controlled. The varieties most susceptible to sun-scald are, generally, the readiest victims to canker. Spraying against other diseases, rot, scab and rust, prevents the canker from appearing. Send to the Experiment Station, Columbia, Mo., for a free copy of a spray calendar, which tells when and how to spray, etc."

COW PEAS

Now is the time to think about planting cow peas in your orchard. They can be planted at once and will mature a crop. See what Colonel J. C. Evans says in this issue concerning the value of cow peas. He doesn't exaggerate in the least.

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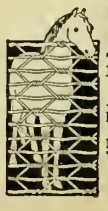
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Our Crop Reports

Reports from our correspondents concerning the prospects for fruit crops are very promising again this month. Perhaps, taken as a whole, the outlook is better than a month ago. From many sections come reports of apples dropping badly, but it must be remembered that apples usually drop badly at this time, and this is to be expected. Work of canker worms is about over, and in some sections their work was complete, many orchards being defoliated. However, the only reports of injury by canker worms are in the states of Missouri, Kansas and Illinois. It is noted that in sections where the best crops of apples were harvested last season reports show the poorest prospects for fruit. This is true of certain sections of Southern Missouri and Arkansas. North Missouri promises a much better crop than that of a year ago; Illinois reports indicate 75 per cent of full crop, and New York reports are flattering. A great many apples will be harvested next fall if present predictions are fulfilled—but it is a long time until picking time.

Peaches have improved in sections where there are any at all. The crop of Southern Missouri and Northern Arkansas is reported as being very promising.

Small fruits have improved, owing to late rains. In Northern Missouri the crop is about harvested, and turned out better than had been expected. Prices were generally good. Cherries and plums are both less promising than a month ago. There is much complaint of wormy cherries, and the crop will not be as large as had been expected.

Our summary of reports follows:

Mammoth Springs, Ark.—Apples have set well, except Ben Davis; at present the prospect fo fruit on all trees, except Ben Davis, is the best in ten years, for the fruit is well set and holds to trees well. Apple trees have blighted some and pears blighted badly; poor prospect for pears. Peaches promise good crop, plums extra good, cherries fair, and some quinces. Raspberries and blackberries are coming out wonderfully. Have had plenty of rain, and wheat, corn, oats and rye are all right.—D. S. H.

Bentonville, Ark.—Most apples promise very well—perhaps 60 per cent of full crop. Peaches full crop, other tree fruits good.—I. B. L.

Santa Clara, Cal.—Apples have set good crop. Last year we had an extra large crop, and this season we have prospects for three-quarters of the crop of a year ago, or a fair average crop. Prunes promise well. pears half crop, plums poor, peaches and apricots heavy crop. Berries in good shape, grapes poor.—W. H. H.

Blue Lake, Idaho.—Apples have set well, and we have prospect for 50 per cent better apple crop than that of a year ago. All tree fruits promise well except peaches.—I. B. P.

Savoy, Ill—Ben Davis, Willow, Grimes and Duchess apples have set well and are growing nicely. Crop will be much larger than that of a year ago—perhaps 75 or 80 per cent of full crop. Grapes are full of bloom; cherries fair, small fruit light crops.—R. L. D.

Quincy, Ill.—Apples have set very well. Canker worms have injured 10 per cent of the crop, but the outlook is for 80 per cent of full crop, prospects being 25 per cent better than a year ago at this time. No peaches, few cherries, good crop of black raspberries, poor blackberries and grapes.—C. H. W.

Nauvoo, Ill.—Apples have set none too well, but prospects are for 80 per cent of crop. Cherries and pears are poor to very poor, plums half crop. Raspberries, 10 per cent; grapes, 50 to 75 per cent.—E. J. B.

Du Bois, Ill.—Apples are fairly set on trees, and there has been some injury from canker worms. Prospects are for about same crop as we had a year ago.—A. A. H.

Griggsville, Ill.—Apples have a very fine set on trees. Prospects indicate a full crop. Cherries light, no peaches, other fruits good crops.—C. G. W.

Batchtown, Ill.—Apples have set fairly well, and canker worms have done some damage in spots. There will be 10 per cent of last year's crop and 5 per cent of full crop of apples in this vicinity. Pears, plums and cherries promise well, as do grapes, though some vines were killed in December.—J. R. D.

Neoga, Ill.—Apples have set an extra full crop, and we have promise of more apples than last year. Everything promises good crops except peaches.—H. A. A.

Hamilton, Ill.—Apples have set well, and we should have 65 per cent of full crop. Cherries are poor, plums and pears fair. Grapes promise well. Many apple trees are now dying from effects of last season's drouth.—H. D. B.

Vincennes, Ind.—Some orchards have good "set" of fruit, others poor. Will not have as much of a crop as last year—perhaps 50 per cent of full crop. Other fruits, except peaches, promise fair, although blackberries have been damaged.—H. M. S.

Glenwood, Iowa.—Apples are well set on most varieties, and some few orchards have been injured by canker worms, but the injury is not extensive. Prospects are for 65 per cent of crop. Cherries, 50 per cent; plums, 70; grapes, 40; raspberries, 70; blackberries, 15; strawberries, 35.—J. P. J.

Des Moines, Iowa.—Apples have set 65 per cent of crop. American plums promise 51 per cent of crop, cherries 48 per cent. Red raspberries, 70; black raspberries, 57; blackberries, 47; strawberries, 65.—W. G.

Shenandoah, Iowa.—Apples have set a good crop, and prospects indicate 90 per cent of crop. Plums, 100 per cent, although canker worms have injured plums somewhat. Early cherries, 35 per cent of crop; late cherries, 60 per cent. Old strawberry beds, full crop; new ones, 50 per cent; grapes, 60 per cent; raspberries and blackberries, 25.—O. H. B.

Davenport, Iowa.—Generally apples have set well. Prospects are for about same crop as last year, or half a full crop. Plums and cherries dropped badly, leaving only half a crop. Blackberries and red raspberries were badly injured by the winter.—N. K. F.

Leavenworth, Kan.—Apples have set a good crop of fruit, and we have promise of an average crop. Cherries good, pears also; pears partial crop. Strawberries were better than our fondest hopes, and other small fruits and grapes are very promising.—E. J. H.

Atchison, Kan.—Apples have set well and prospects indicate a good crop, though some fruit has dropped. Canker worms have done some damage, though cannot say to what extent. We should have more apples than last year and perhaps nearly equal to full crop, if too many apples do not fall off the trees. Cherries were injured by a severe wind storm. Pears poor, plums good. Small fruits are generally poor, but rains are helping raspberries.—O. H. P.

Tray, aKn.—Apples set well, but young trees have not held the fruit well. Have heard of only two orchards badly injured by canker worms. We have prospects for 75 or 80 per cent of full crop. Blackberries, raspberries and grapes indicate full crop. Cherries half crop.—A. P.

Rosedale, Kan.—Apples set well, but they are dropping. We expect 50 per cent of crop, York and Ben Davis trees being full, the others shy. No peaches or plums, pears full crop. Strawberries yielded 60 per cent, raspberries promise well; blackberries half a crop; grapes very poor.—F. H.

Holton, Kan.—My orchard is well set with apples, but most orchards have little fruit, for canker worms ruined many of them. We expect 25 per cent of crop. No cherries, plums or peaches. Strawberries turned out better than expected; raspberries, 100 per cent; blackberries, 75.—F. W. D.

Wichita, Kan.—Apples have set well, two-thirds crop. Some varieties which bore heavily last year have little fruit this season. Peaches promise half full crop, other tree fruits full crops. Small fruits are not so promising as usual.—W. F. S.

Parker, Kan.—Apples promise two-thirds of crop, except Janet and Jonathan, which are shy. Canker worms injured some unsprayed orchards, but spraying saved ours. We had over 2,000 cases of cherries last season, and will have perhaps half that quantity this year. Plums are again a poor crop; we have 80 acres here, which have never done any good.—B. F. C.

Watervliet, Mich.—Apples set a good crop, and excepting a few trees of Baldwin, Astrachan and Spy we should have a full crop. Pears 60 per cent, peaches 50 per cent, plums 75 per cent, cherries 65 per cent, strawberries 85 per cent. Had a frost on the 27th and 28th, but did no damage to grapes or small fruits.—R. H. S.

Kansas City, Mo.—Apples set very poorly, with injury by canker worms in some orchards. Prospects indicate not over half a crop. No peaches, cherries three-fourths of crop, raspberries half crop.—L. A. G., Sec.

Bogard, Mo.—Apples set fair, and some orchards have been stripped by canker worms. Prospects indicate 30 per cent of crop. Cherries 60 per cent. Grapes promise well where vines came through winter alive.—J. P. C.

Glasgow, Mo.—Apples set well in places, but canker worms have injured many orchards. Some few orchards promise well. others poor. Pears no good, cherries 50 per cent grapes 80, raspberries 40, blackberries 75, native plums 25, Japan plums 75.—H. S.

Oregon, Mo.—Apples have set fairly well. We should have more than twice as many apples as a year ago, or 70 per cent of full crop. No peaches, cherries, and plums half a crop, few pears; grapes, 70 per cent, berries 50 per cent of crop.—N. F. M.

Lebanon, Mo.—Apples have set very well, and we should have larger crop than last year—65 per cent of full crop. Cherries, plums and pears promise well, and small fruits are in fine shape.—A. T. N.

Marionville, Mo.—Apples have set good to excellent. Fruit is not so much in clusters as a year ago; have had more rain and ground is in better condition; more barren trees, but with a normal season we should have a much larger crop than last year. Peaches promise a full crop.—W. T. F.

Nichols, Mo.—Apples have set 35 per cent of crop, and we should have 40 per cent of last year's crop, or 25 per cent of full crop of apples. Peaches are light crop here. Strawberries yielded 25 per cent of crop, other berries and grapes good.—G. T. T.

Du Bois, Neb.—Old trees have set fruit well, young trees shy. Some of our apple trees look a little ragged from canker worms, as they were the last to get sprayed, but no damage resulted. There will be a great many more apples than a year ago, we think. Cherries promise not one-third of a crop, pears good, blackberries a failure, though they looked fine until lately. Will have a full crop of grapes where vines were not injured by last year's drouth, from the effects of which some vines are dying.—C. O. B.

Lockport, N. Y.—Apples have set well except Baldwins. We will have a full crop of all tree fruits except the varieties noted: Baldwin apples, half crop; Bartlett pears, one-fourth crop; all peaches, one-third crop. Grapes promise full crop, berries fair crops. Weather is ideal for fruit.—D. T. McC.

Fayetteville, N. Y.—Apples have set fair crop of fruit, and prospects indicate 80 per cent of full crop. Plums, cherries and peaches very light.—F. E. D.

Gasport, N. Y.—Apples have set well, and we should have 70 per cent of full crop of winter apples. Peaches 10 per cent, pears 20 to 25 per cent, cherries 10 to 25 per cent, and plums 25 per cent.—C. B. S.

La Grangeville, N. Y.—Fruit prospects are fine with me, but not more than average crop through this section and light in many places along the Hudson River Valley.—T. C.

Geneva, N. Y.—Apples promise well in most orchards. Other tree fruits vary.—N. O. B.

Adams Basin, N. Y.—All apples have set well except Baldwins. We should have more apples than last year, but far from a full crop. Cherries and plums were injured badly by frosts, but berries promise well.—C. O. B.

Fredonia, N. Y.—Apple prospects are good for a full crop. Peaches were frozen, pears promise half a crop, early cherries were injured some. Grapes are backward, but are in good condition for a full crop.—T. S. H. Co.

Bradrick, Ohio.—Apples have set pretty well, and Rome Beauty is in it certainly this year. Scab has appeared in some orchards after the late rains. We should have three times as many apples as last year, with good crops of Rome Beauty and some other varieties which bloomed well. Plums, heavy crop; pears, fair and blighted; peaches, mostly dropped off; cherries ripe, with one-fourth crop. Small fruits are not up to former years, and grapes promise well.—U. T. C.

Northeast, Pa.—Apples have set well here, but there are no large orchards; few spray and trees mostly neglected. Cherries, plums and peaches promise light crops. Small fruits are all right, and grapes promise well here, although some injury is reported from the east end of the belt.—A. I. L.

Spring City, Tenn.—Apples set fair crops, but are dropping badly. We should have half full crop. Peaches started well, but are dropping badly. Pears promise well, plums fair, and grapes more than a usual crop.—R. B.

Winchester, Va.—Apples promise 25 per cent of crop. Peaches 65 per cent, plums and pears 20 per cent. It is very dry here and we need rain badly.—W. S. H.

A. L. Zimmerman, Weatherby, Mo., reports that hail did great damage to fruit crops in that vicinity. Strawberries were beaten into the ground, and raspberries were badly cut off.

John Chamblin, Oak Grove, Mo., writes that he keeps a scrap book, into which he files clippings from the Western Fruit-Grower in which he is interested. He now has two large books full of them.

The program for the thirty-fourth annual Nebraska State Fair, to be held at Lincoln, August 29 to Sept. 5, 1902, has been received, and shows a full list of premiums in all departments. The Nebraska State Horticultural Society will have charge of the fruit display.

S. Davis, Bentonville, Ark., says there will not be a full crop of apples in that vicinity, but the fruit on the trees is nice and smooth. Trees have suffered some from twig blight. There has been much complaint from all sections this season in regard to twig blight, however.

Reports from most sections are that the season has been exceptionally favorable for all newly planted fruit trees and plants. Strawberries will likely be scarce and high next season, however, owing to the scarcity of plants this spring, many growers being unable to get the plants they desired.

Some of the Southern fruit-growers' associations are arranging a list of commission firms which are honest, and those which are not are blacklisted. The associations go even farther, and blacklist those growers who pack their fruit in an indifferent manner. This is as it should be. That association which seeks to protect the growers against dishonest commission firms, and at the same time does not protect rediable firms against dishonest or careless grewers, makes a mistake.

Henry Willson, Clinton, Ill., writes: "I have been much interested in the article concerning the use of bands for catching the larvae of the codling moth. I would like to suggest an experiment for some one to try. If the bands are soaked in some kind of poison that is permanent, the larvae might get enough of the poison to kill them, without taking off the bands. I think the worms eat some of the material of which their cocoons are made, and if the bands are poisoned the worms might be killed." This experiment may work, but it would be rather dangerous to depend on the worms getting enough poison to kill them. We shall be pleased to hear from anyone who tries the plan.

Professor John Craig of Cornell University, Ithaca, N. Y., has lately issued two very interesting bulletins—one on "Cover Crops," the other on "Muskmelons." In recent years quite a large business in growing canteloupes has been worked up in parts of New York State. In many sections the plants are started under glass, the growers making wood veneer boxes about three inches square and four inches deep, but with no bottoms. These plants are subject to many enemies, such as "damping off" fungus, etc. The plants are set on the best site to produce early melons, for the melons must be early and prices good to pay for the extra work of starting the plants under glass. In most cases, Prof. Craig says, New York growers can most profitably practice both methods—plant some seeds under glass for early crop, and seeds for main crop in the open.

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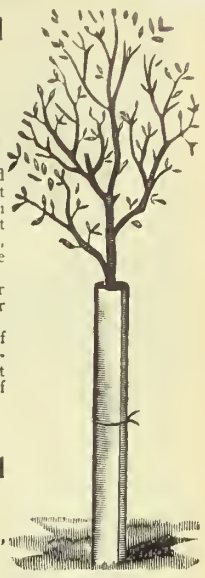

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THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS

ST. JOSEPH, MISSOURI

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WESTERN FRUIT-GROWER

ST. JOSEPH, MISSOURI.

Since our May issue was mailed we have received a great many letters from all over the country commending the plan we propose, to list orchards and to receive reports from same concerning fruit prospects. We have listed all orchards from which reports have been sent, and will publish the list later and see that a copy of the list goes to all the members of the Apple Shippers' Association and to all others who are interested in this business. Several thousand names should be sent at once for this list, and we urge our readers to do this. The report should give address of owner, his postoffice, shipping station, size of orchard, varieties, and whether other fruit can be bought in the neighborhood. All this information is of vital interest to the apple buyers, and at the same time will help the growers immeasurably, by bringing competition in the buying. As one grower remarked, in sending list of his orchard, "It will place our orchards before the entire market, and not leave us at the mercy of local buyers of apples, or even those who come from other places, and who, when they find there is no competition, too often refuse to pay what the fruit is worth." To make this plan a success it will be necessary to get most of the orchardists of the country interested, and there should be no difficulty in doing this. We hope to have reports from all our readers who have twenty acres or more of apple orchard, and to have the report at once. Send it today.

In connection with this proposed plan, we have received several suggestions that the size of the orchards is too large; that small orchards should be listed. This is true. But it will take a lot of work to get the plan started at all, and we thought best to make the limit twenty acres. When we get all orchards of twenty acres or more listed, then we will try to get the smaller ones. But we will have to get the other list first.

Another thing: There is nothing in the nature of a trust in connection with this proposed crop-reporting bureau. Some have the idea that an organization is to be formed which will handle the fruit crop, whereas nothing of the kind is intended. It is simply to list orchards for the purpose of placing the names of owners before those who will buy the fruit, together with reports as to the probable crop. The government has experts to report the condition of wheat crop, with other grains, and the different boards of trade also have a similar plan to receive reports concerning the same crops. But nothing of the kind exists in regard to the apple crop, which is a crop of no inconsiderable proportions. And apples, too, are perishable, and the owner cannot store them as he does wheat, in a granary or a public elevator, and wait until he ascertains the condition of the market and the size of the probable crop. Apples must be handled with care, and in a great many cases are sold at packing time. It is to get reliable data concerning the size of the crop, and to place this information before the buyers and the sellers, that this plan is proposed. There will be no charge whatever for listing the orchards this year, for the Western Fruit-Grower will stand the expense. If the plan succeeds as it should, and as it bids fair to do, then next year those whose orchards are listed will be asked to contribute a nominal sum, not over $2, to provide for the necessary publicity for the reports and the list of orchards. Send us list of your orchard, and your opinion of the plan. The plan proposed has the indorsement of many apple buyers and of hundreds of growers. What do you think of it?

A letter from Walter H. Underwood, Hutchinson, Kan., commends the point raised by O. Mulvey of Arkansas in our May issue in regard to regulating the size of the bushel box. Mr. Underwood has 600 acres of apples, and says some of his crop will be packed in boxes, and naturally he is interested in the size of the package. Why not the horticultural societies of the different states get together and recommend to manufacturers of boxes the adoption of a box of uniform size? The matter can be more easily settled now, when few boxes are used, than at any future time. If the societies will recommend a box of certain size the manufacturers can at once introduce the size box recommended, and much confusion will be avoided. There are all kinds of quart boxes—dry measure, liquid measure, scant measure, etc.; there are standard apple barrels, eleven-peck barrels, and so on. Let there be a standard adopted for the box, and in this case, at least, avoid a number of sizes. Who has suggestions to offer as to how the matter can be best accomplished before time to pack apples? Let us hear from some of the manufacturers.

A gentleman who has examined a number of apple orchards this spring remarked the other day that the present year promises to be "a Ben Davis year." From nearly every section reports are to the effect that Ben Davis trees are well set with fruit, and the statement is frequently made that if this year's crop of Ben Davis apples can be marketed profitably, there need be little fear of overproduction of this sort. But remember there are many things which can happen to the apple crop before packing time. But it certainly looks as though the apple crop will be a bumper one. Let us hope this will be true.

Last year canker worms did much damage in the Missouri Valley. This year they did a great deal more. And this, too, in spite of the fact that horticultural papers, and even the daily papers, had full reports of the work of the insect and gave remedies for its prevention. How long will some farmers continue to lose their apple crops because they will not begin in time to fight the pest? In most cases, it is noted, the orchards which have been defoliated are not the large ones, showing that commercial growers are pretty well informed concerning the ravages of the canker worm, and prepare to resist its attacks. We do not believe that very many persons who have read the Western Fruit-Grower carefully during the past year have had any trouble with this pest. Certainly they were sufficiently warned. Now, they can help themselves by inducing their neighbors to subscribe for and read this paper, and by so doing they will help to remove from their neighborhoods orchards which are now breeding places for all kinds of enemies to fruit-growing. Get your neighbors to subscribe, and thus help him, help yourself, and help us—and help all interested in horticulture, for it will mean the improvement of this paper in every way.

Blackberry bushes have come to be a pest in Australia, and the government is trying to devise some way to prevent the vines from overrunning the country. Farmers are praying for some pest which will kill blackberry vines, even if they have to inoculate every plant. How would it do to introduce our blackberry rust? Perhaps Major Holsinger was right when he made the statement before the Missouri Horticultural Society a few years ago, that blackberry rust was the provision of nature to hold in check this plant which spreads so wonderfully when it is left unmolested. It may be that the disease which has ruined so many plantations is really a blessing in disguise. Let us take that cheerful view of the matter, at any rate.

Long Ago.

I once knew all the birds that came,
And nested in our orchard trees;
For every flower I had a name—
My friends were woodchucks, toads and bees;
I knew what thrived in yonder glen
What plants would soothe a stone-bruised toe—
Oh, I was very learned then—
But that was very long ago.

I knew the spot upon the hill
Where checkerberries could be found—
I knew the rushes near the mill
Where pickerel lay that weighed a pound!
I knew the wood—the very tree
Where lived the poaching, saucy crow,
And all the woods and crows knew me—
But that was long ago.

And pining for the joys of youth,
I tread the old familiar spot
Only to learn this solemn truth:
I have forgotten, and forgot.
Yet, there's this youngster at my knee
Knows all the things I used to know.
To think I once was wise as he!
But that was very long ago.

I know 'tis folly to complain
Of whatsoe'er the fates decree,
Yet were not wishes all in vain,
I tell you what my wish would be:
I'd wish to be a boy again,
Back with the friends I used to know;
For I was, oh! so happy then—
But that was very long ago.

—Eugene Field.

The Western Fruit-Grower is a good paper, and it continues to grow in our appreciation. —I. A. Wooll, Leslie, Mich.

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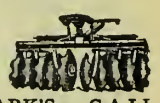
Tools Used by George M. Clark

CLARK'S DOUBLE-ACTION Cutaway Harrow will easily move 15,000 tons of earth one foot in a day.



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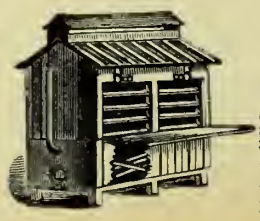

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Spraying Apples in Colorado

The illustrations herewith show the sprayers starting to work in the orchard of J. H. Crowley, Rocky Ford, Colo., and are interesting in showing the extent to which Mr. Crowley practices spraying. The illustration on the left shows an outfit of two Deming Company pumps mounted on two fifty-gallon barrels. Two bamboo poles are used to get the spray into tops of trees, and each pole has a cluseter of four nozzles. The pumps are used alternately.

The illustration on the right shows a Morrill & Morley outfit, with two bamboo poles, with cluster of four

nozzles on each, or eight nozzles in all. The tank holds 250 gallons.

The single-column illustration shows the first codling moth egg discovered by Mr. Crowley this season. This was on May 18th. Mr. Crowley writes that this photograph was not intended for publication, as it is the first time he has tried to photograph so small an object. Of course the illustration is much enlarged, and the egg shown by the small white dot in the center of the side of the apple. This shows that in this case, at least, the egg was deposited on the apple, and the worm will have to seek entrance. The calyx end of the apple, too, shows conditions to be right for the depositing of a dose of poison in that end of the fruit, to await the coming of the worm.

In regard to his spraying operations, Mr. Crowley writes:

"We began spraying May 5th, using arsenate of lime, arsenate of soda, and on one block arsenate of lead (or Gypsine), the latter being Swift's, Boston, costing 17 cents per pound

there, with express charges of 12½ cents per pound, so it comes high. Arsenate of lime was made as follows: I pound of white arsenic, 2 pounds of lime, 2 gallons water; boil 50 minutes; use one quart to 50 gallons. The arsenate of soda was made as follows: 1 pound white arsenic, 4 pounds of sal soda, 2 gallons water; boil 17 minutes; use one quart to 50 gallons water. We used one pound blue stone to 50 gallons water, and four pounds of lime.

"The arsenate of soda worked best so we have used it mostly. We began on the 5th and finished the second spraying on the 17th. Found first egg May 18th, and found first worm in the apple May 28th; it started in at side. They are scarce, as are also eggs at this date. Ben Davis promises 60 per cent of crop of fruit; Missouri Pippin, 70; Winesap, 80; Stayman Winesap, 100; Rawles Janet, 60; Gano, 90; Jonathan, 90; Maiden Blush, 100; Duchess, 80; Yellow Transparent, 50; Walbridge, 10; all Crabs, 100; Nectarines, 100; Cherries, 100; Prunes, 100; Peaches, 75; Plums, 10 to 100. Orchards are in good condition. We think the fruit will be good in quality. The weather has been even and warm since bloom, and fruit has grown fast. Our orchard consists of about 60 acres of apple, from 6 to 15 years old, but only two acres are 15 years; most of it 7 to 10. Dyehouse cherries beginning to ripen; had 3¼-inch rain this week, falling gently, which insures melon, beet and all farm and garden crops.

" J. H. CROWLEY.

"Rocky Ford, Colo."

Eve's Apple.

A fruit supposed to bear the mark of Eve's teeth is one of the many botanical curiosities of Ceylon, says an exchange. The tree on which it grows is known by the significant name of "the forbidden fruit," or "Eve's apple tree.' The blossom has a very pleasant scent, but the really remarkable feature of the tree, the one to which it owes its name, is the fruit. It is beautiful and hangs from the tree in a peculiar manner. Orange on the outside and deep crimson within, each fruit has the appearance of having had a piece bitten out of it.—California Fruit Grower.

To the above there are two serious objections. First. The Bible says nothing whatever in any place about our Mother Eve having anything to do with an "apple" of any kind. It was the fruit of "the tree of the knowledge of good and evil"—otherwise, curiosity—the satisfaction of knowing by trial, right or wrong, what it tasted like—that tempted her.

Secondly: She did not take a bite and drop the fruit, whatever it was, in this condition, but she gave it to Adam and he ate the whole thing; judging by the way men act nowadays when anything is found that suits the taste of the ladies. They surely know what is good and the men are very willing to eat greedily from the same tree. I do not believe that Adam or Eve left any bitten fruit laying around that might have been perpetuated in Ceylon, which is said to be the Eden of today. Eve has already been blamed too much, so let us not believe this latest scandalous insinuation.—H. E. Van Deman, in Green's Fruit Grower.

Hardy Oranges.

"Japanese orange trees are now being grown as far north as Virginia and Maryland. Sweet oranges have been grafted on these hardy stocks, and are growing reasonably well. There is no telling how far north oranges may yet be successfully grown, and also no telling when Boreas may blast an entire orchard that has intruded too far into his domain."

The above statements and others of a similar character have been going the rounds of the papers, which are misleading, if not entirely without foundation, in fact. There is a species of orange, citrus trifoliata, which is hardy as far north as Washington and St. Louis. and in some places north of there, but it bears small fruit of worthless and repulsive flavor. It makes a beautiful and very thorny bush, with glossy foliage and green twigs, which drops its leaves in the fall. It is well adapted for hedges and looks well on the lawn as a single tree-like bush. The white flowers are abundant and fragrant, like those of other orange trees.

While it is true that hybrids between this hardy species and the sweet or edible oranges have been made, and experiments are being made to determine the value of the fruit as regards size, flavor and adaptability to regions north of those where the good oranges flourish, it is not true that any varieties or points of value to the public have been developed. There is not a good orange tree, that is, one that is bearing or will bear good fruit, so "far north as Virginia," nor for several states south of there. Even in extreme Northern Florida there is the utmost difficulty in getting orange trees to succeed, and, for the most part they fail except in the central and southern portions of that state, as I can testify from personal inspection within the last year.

H. E. VAN DEMAN.

Washington, D. C.

A New Emulsion for Spraying.

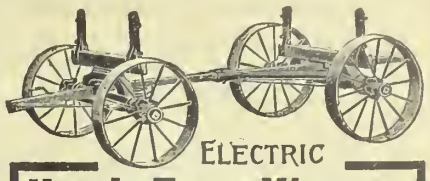
Mr. J. D. Ormbsy, of Lime Hall, St. Ann, writes to the Journal of the Jamaica Agricultural Society: "I think I have found out an insecticide for spraying plants which is superior to the kerosene emulsion. Hitherto, I have used the Hubbard's formula of kerosene emulsion, but I find if I am ever so careful with it, it burns the young leaves and tendrils, unless it is so much diluted as not to affect the insects. Knowing how averse all insects are to castor oil, I thought I would try an emulsion of ti. I tried the soap—boiling water and oil as in the Hubbard's formula, but it would not emulsify; then the thought struck me to add carbonate of soda, and it is quite a success. My formula is: One quart of castor oil, 1 pound of hard soap, ¼ pound carbonate soda, 1 gallon water; boil soap and soda in water, and when melting and boiling hot stir in the castor oil. You can dilute in 10 or 20 parts of water for spraying, and you can take a brush and paint the stalks of plants the ants or other insects are troubling without diluting—no insect will face it, and it does not burn the young leaves or sprouts. I shall be glad if this is found useful to the public at large."

While visiting a pear orchard at Calhoun, Alabama, recently, I observed that the trees were all branched just above the surface of the ground, and that each tree had several of these low-set branches. On inquiring the object of this peculiar method of growing the pear tree, I was told that it was intended to fortify the tree against destruction by blight. If one of these main branches was seriously attacked by the blight, it could be cut off at the bottom, and thus the rest of the tree could be saved. New branches could be trained up occasionally to take the place of those that had been cut out, and thus the life of the tree could be prolonged, unless the attack was so severe as to include all of the branches at once. The blight in Alabama is even more serious than with us. This method of branching the pear tree is not generally practiced there, and the trees in the orchard where I saw it in use are as yet rather young. How valuable it may prove to be remains to be seen, but it seems to me worthy of trial for our Wisconsin pear trees.

E. S. GOFF.

Experiment Station, Madison, Wis.

After reading the statements that bees are necessary to fertilize fruit blossoms, I would call attention to the fact that last year hardly a bee was seen in our orchards, and yet we had a good crop. The bees are scarce again this year. There is a little wild bee and hosts of other little insects that will fertilize the blossoms if their assistance is needed. So you see the honey bee is not needed, as claimd, in the orchard.—C. S., Mapleton, Iowa.



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Strawberry Gossip

Wm. S. Crawford

I HAVE seen the desirability of removing the winter mulch entirely from the patch well exemplified this year. On May 9th, and again a few nights later, when early varieties were in full bloom, we had killing frosts. We had removed the mulch from the plants and left it in rows between beds. Since its removal we have had considerable windy, drying weather, but where the mulch lay the ground was almost like putty. A day or two after the last frost it could be readily seen that the rows next which the mulch lay were hurt much worse than the rest of the patch. The ground near them being full of water, was cold and unable to give off the heat necessary to keep the air near it above freezing temperature. Had we removed the mulch entirely, we should doubtless have saved some blossoms. I do not consider a pruning of the blossoms by an early frost as very serious, however. To be sure the frost killed what would have been the very largest berries on some early kinds, but the average size and the crop will probably be as large. Most varieties set too many berries. Some that do not, like the Marshall, but which, like it, bring almost every berry to perfection, are likely to get the name of being unproductive. If we had the time and the nerve to thin out strawberries, picking off a good share of the green ones that promise to become misshappen or knotty specimens, I believe we would get larger berries, as many bushels, and more money.

How often it occurs that when a variety comes into bearing the grower wishes he had set more plants of it two months before. Frequently a fine set of runners are sent out during the bearing season, and it seems a pity to let them go to waste. It is probably not good in theory to set plants from a bed that has borne, but theories are sometimes swept aside, no matter how good they may be. If the runners are left on the plants, the pickers will tramp them to death. The only way to save them is to cut them off and make cuttings of them. That is a truth that some people do not understand. I admit that I do not like the plan, but there are those who know more about it than I who do. When a runner has set a plant and the roots are scarcely visible, the plant can be made to grow with proper care. Cut the runners off in the morning when the dew is on, or later if you put them at once into a wet bag. Take them to a shady place and cut them in such a way as to leave on each little plant about an inch of the runer that produced it. Cut all leaves but one off the little plants and cut off the runners extending beyond them. A place for them should be prepared by making a frame of boards six inches wide nailed to stakes driven in the ground. The boards should rest with one edge on the ground and earth should be drawn up against them a little on the outside. The earth inside should be made rich, level and fine, and, if possible, there should be half an inch or so of sand on the surface. After the cuttings have been made and dropped into a pail of water, sprinkle the bed where they are to be set until the groud is soaked. Then take each plant between the finger and thumb and thrust the inch of runner at an angle into the ground until the point where the roots are coming out rests on the ground. The plants should be two or three inches apart. Then shade them by laying screens made of muslin tacked to lath or a large piece of muslin tack to one side of the frame, so that it can be drawn over the frame and fastened to the other side so as to hold it taut. For the first couple of days the plants should be well watered night and morning. Then once a day is enough. The shade should be removed at sundown and replaced in the morning, unless a wind is blowing, when it should be kept on all night. If there should be a cloudy or rainy day remove it during the day also. After the first few days the shade may be removed earlier each evening and replaced later each morning. In a couple of weeks the plants should be well enough rooted to bear trasplanting to another bed farther apart, or into pots. Later they way be planted in the field. Such plants have been on their own resources from the start. They are not so stocky as plants grown in the usual way, but have a larger number of finer, harder roots. This is a puttering way to grow plants but it sometimes pays well, where one desires to save plants of a valuable variety. It is by this system that the wonderful increase of plants, as 1000 from one in one sumer, is brought about. The old plant not having to support the young ones, throws out runners rapidly and the young ones are "raised by hand."

I would caution the inexperienced against one or two mistakes they are liable to make. The cuttings should be made at such a time that they can be planted that day. If they lie over night in water most of them will die. After they are planted do not do too much watering. Do not let the ground get dry so they will wilt, but on the other hand do not keep it soaked.

About now some people are wishing they had set strawberry plants in the spring so they would have a bearing bed next year. I am asked not infrequently whether fruit can be had next year from the fall-set plants. It can, and it will be as large and fine, with proper care, as if the plants had been set last spring, but there will not be as much of it. The usual advice is to set plants as early as the young plants can be had—July if possible. This is sound advice ordinarily, but there are exceptional cases where it does not apply. Probably the main element of success with summer or fall-set plants is to keep them growing continuously. Given a favorable summer with frequent showers in July and August, good plants and a reasonable amount of skill, and July is the best time to plant, excepting, of course, the early spring months that are best of all. But it is not wise to set plants in July or even in August in a drouth unless one has the facilities for watering them thoroughly. To have a plant stand still after it is planted and merely keep alive for a couple of weeks is about the worst thing that can happen to it. Rather than have that occur, the planting would better be deferred until September. There is not much danger of such a standstill where potted plants are used. To knock them out of the pots and plant them, using a little water, scarcely gives them a shock, and they keep on growing. But potted plants have their drawbacks. In the first place, they are expensive, the express charges are high because the balls of earth are heavy, and there is danger of having insect enemies transported in them. Quite a satisfactory plan is to get layer plants and transplant them into pots, set the pots in a frame where they can be shaded and watered two or three weeks, and then transplant them to the permanent bed on a cloudy day or after a rain. Like growing cuttings, this is too puttering for large growers as a rule, but new varieties or a bed for home use may be planted in this way in summer or fall nicely.

Some months ago a correspondent wrote us: "I wish you would tell in your report on varieties the date of the last pickings of varieties." That is really a very important matter. Quite a long time ago I read an article by a man telling how he managed to get late berries, by planting on a north slope, mulching heavily, etc. His experiments were with the Haverland. At the time I thought he was foolish to try to get late berries from so early a variety as the Haverland. Why not plant late kinds, I thought. I have changed my opinion since. The fact is that the so-called late varieties are not so much later than the others as we are accustomed to credit them with being. Their first picking is late, they last a few days and are gone. The great main croppers that had been bearing a week or ten days before they began are gone about the same time. My father was not far wrong when Mr. Terry asked him, "How much later is the Gandy than the Haverland?" and he answered, "About twenty minutes." It is the last picking that shows the lateness of a variety. To be sure, some late kinds give a first picking or two of fine berries when the midseason kinds are on the wane. In that way they prolong the season of fine large fruit, but not always for fruit for home consumption. Last year we marketed our last berries from the Miller, whose season begins about with the Bubach. I have seen reports of Nick Ohmer, Margaret and Wm. Belt as holding on as long as any varieties on the list, and still the Nick Ohmer and Wm. Belt are midseason varieties. The same may be said of the Ridgway, Sample, Brandywine and a number of others. For years the Gandy has been the great late berry, but scarcely a month passes that we do not hear of people dissatisfied with it because it is not productive enough. It gives fine berries a few days. Plenty of other kinds do the same, besides giving fine berries for numerous days before the Gandy ripens at all. Are we not to some extent fooling ourselves about this matter? WM. S. CRAWFORD.

Cuyahoga Falls, Ohio.

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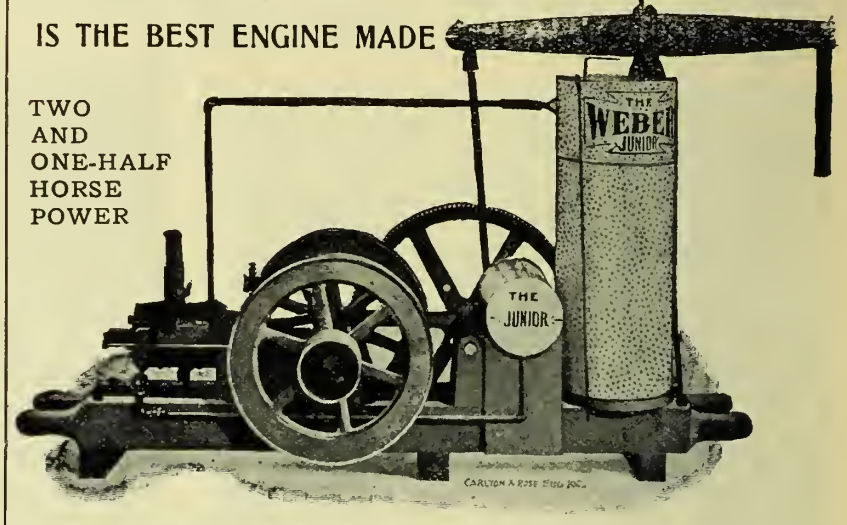

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Practical Lessons in Spraying.

Mountain Grove Horticultural Society held their May meeting at the Misouri Experiment Station and in the afternoon Prof. Stinson, with his very able assistants, exhibited the various spraying apparatus that he uses in his work on the experimental grounds and orchards.

Everything from the knapsack outfit and bucket pumps to the large pumps suitable for the most extensive work were shown and the work fully explained. Various nozzles were used and the right and wrong way fully explained. Bordeaux mixture and other sprays were made, and the proper and improper mixing of materials made plain to all.

The value of this kind of work done by Prof. Stinson is incalculable and every fruit grower within reach of these practical lessons given from time to time and in various parts of Southern Missouri, should avail themselves of such an opportunity to obtain the best results gathered by Prof. Stinson from years of experimental work.

But the greatest good done by attending a meeting of this kind is the contagion of enthusiasm that permeats the atmosphere around Prof. Stinson and his assistants.

Many who go out of curiosity go away converts to the spray pump, and if they will take advantage of the information so ably given can be certain of a reasonable amount of success.

The Station building is an interesting place for the fruit-grower, with its library of practical works, and for microscopical study, with its very courteous and able director and assistants ready and willing to give any help in their power .

An immense amount of work has been done on the experimental ground and in spite of the severe drouth of last year, everything is looking fine and congratulations are certainly due those who have so ably pushed this work to its present completeness.

A. Z. MOORE.

Arsenate of Lead, or Disparene.

Reference has been made before to Disparene, an insecticide manufactured by the Bowker Insecticide Co., Boston, Mass., and at this time the preparation deserves particular attention because of the fact that it has many claims for favor over paris green and the mixtures ordinarily used.

In the first place, Disparene, which is a preparation very similar to arsenate of lead, is of known strength, and there is no danger of using impure poison, as there always is when this poison is used. Then, too, Disparene sticks to the foliage much better, and is even not washed off by a good hard rain. Also, by using Disparene one runs no risk of burning foliage of trees, for the mixture will positively not harm the foliage—and that is quite an item, as those who have had to increase the strength of their mixtures in order to kill canker worms, know from experience. And, finally, Disparene remains in suspension much better than any other insecticide, and there is no danger of the poison settling as paris green does.

Disparene is used wherever paris green or other arsenite is recommended, and our readers who are interested should write at once to Bowker Insecticide Co., Boston, Mass., for full particulars. Shipments are made from Western houses, and orders can be filled promptly. Mention Western Fruit-Grower when writing.

Prehistoric Relics Wanted.

Phillips Academy, Andover, Mass., has recently established a Department of Archaeology. My object in writing you is to encourage the preservation of stone, bone and clay prehistoric art forms. In your section of the country are frequently found various "Indian relics." These have a direct bearing on the history—or rather pre-history—of America, and as such should be preserved in fireproof buildings for the study and edification of present and future generations.

I am persuaded that there may be persons who have found some remains of the ancient Indian tribes. "Mound builders," etc., and that, possibly, they would be willing to send them to us. We shall be glad to pay express charges on any and all boxes of specimens sent to us, to mention the gifts in our report and to give the donors due credit in our exhibition cases.

All these axes, pipes, spear heads, clay vessels and "strange stones," should be carefully preserved somewhere, where they may be of service to the public and to science. Archaeology — technically followed — is a new science in the United States and it is more important than the average reader imagines, for these "stone relics" have a direct bearing on the antiquity of man.

I shall be glad to correspond with persons who have "relics" in their possession.

WARREN K. MOOREHEAD.
Andover, Mass.

Who is to Blame?

I would like to state a hypothetical case for brother nurserymen to reply to through your valuable paper:

I sold several thousand trees to Mr. ———. I purchased these trees from different nurserymen, shipping direct to purchaser without seeing the trees. Two years afterwards my customer discovers that the trees are all diseased. Samples are sent to state entomologists, who say that the disease originated in the nursery, is incurable, and that the trees should be destroyed. My customer destroys the trees, thus losing what he paid for them, and cost of cultivation. The nurserymen from whom I purchased these trees have certificates from the state entomologist stating that their nursery stock is free from disease. What is my duty towards my customer? If I repay him, should the nursery from whom I purchased repay me? Does the certificate of the state entomologist absolve the nurseryman from all responsibility?

(Signed) ———

We say final recourse should be had from the nursery which grew the diseased trees, and which sold them as being free from disease. What say others? A certificate from an inspector certainly should not relieve the nursery of responsibility of growing and sending out diseased stock.

Japan Walnut Cordiformis.

The more we see of this nut tree the better we like it.

Two years ago we had some rough and crooked two-year-old trees that were not good enough to send to our customers, and disliking to throw them away we planted them in a little strip of waste land between a branch and the fence. This year the little trees are full of bloom, and we expect to have a nice crop of the nuts. We fruited two trees last year at five years old, and now these trees are coming into bearing at four years old from seed, and were the inferior and ill-shaped trees left over from our billing.

The nuts are worth fifteen to twenty cents per pound on the market, and will bear more bushels of fruit to the tree than an apple.

It makes a beautiful and picturesque shade tree and can be planted for shade and ornament, and take the place of shade trees that are planted only for their shade and beauty.

It would be a good idea for the farmer to plant these trees along his roads or along his fences. Plant them and give them good attention the first year until they are well established, and after that they will take care of themselves, and after the fourth or fifth year they will help take care of the family.

AMERICAN PLANT & SEED CO.
Nashville, Tenn.

How's the Cardinal Raspberry?

A letter from A. H. Griesa, Lawrence, Kan., requests that those who received Cardinal raspberry plants as premiums in the spring of 1901 report as to how the plant has succeeded. Mr. Griesa, who introduced the Cardinal, says the season was of course against the plants, but he is naturally interested in hearing from them, for they were distributed all over the United States through the premium offered by this paper. Our readers will therefore kindly drop A. H. Griesa, Lawrence, Kan., a card making report of the behavior of the plants received a year ago.

A New York Fruit Center.

The building of trolley lines throughout the country is destined, we believe, to help fruit-growers market their products in much better shape. A letter from D. T. McCarthy, Lockport, N. Y., tells of the way fruit is to be handled there. Lockport is connected with Buffalo by trolley line, and this line is being extended through the fruit belt. At present all fruit except barreled stock is hauled to Buffalo by teams, an average of 350 teams making the trip each day. Under the new arrangement, however, the trolley company is building low flat cars which will hold five wagons. Arriving at market the wagons will be drawn by hand from the car line to market, and the expense of transporting the produce will be less than half that where teams are used. Lockport has eight large storage plants, and thousands of barrels of apples are stored there each season. Prospects are good this season for a crop. Concluding, Mr. McCarthy says:

"We have been taking the Western Fruit-Grower for four months and find it is the best fruit paper in America. We wish you all kinds of success."

To Our Readers.

This month's issue of the Western Fruit-Grower went to press slightly earlier than usual, and therefore the report of the Missouri State Horticultural Society does not appear in this number, as would have been the case had the meeting been held the first week in June—the usual time. This report will appear next month.

In this connection we wish to remind our readers of the necessity of renewing their subscriptions promptly, for we do not believe many of them wish the paper discontinued. Plans are being perfected for improving the paper, although we believe that at the present time it contains more practical information for fruit-growers than any other publication in the country. It takes money to print the Western Fruit-Grower, and it is necessary that all subscriptions be paid promptly. Renew your subscription today, and do your part toward building up a great fruit paper.

"The Only Light Beneath the Skies"

Of all the many Gas and Gasoline Lights that have been invented there is yet to come a light that will excel the

"The Wonderful Doran"

CONSUMPTION OF GASOLINE—COST — 2437 cubic centimeters of gasoline used in twelve hours, the gasoline being under 40 lbs. pressure. Cost at this rate .0437 for twelve hours.

Don't believe us, but write and we will send you a list of several hundred business men using the Wonderful Doran, whom we give as reference.

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Sole Agent for Western Territory

Platt's Commercial College

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ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

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Chillicothe Commercial College
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Chillicothe Telegraph College
Chillicothe Pen-Art College
Chillicothe School of Oratory
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Last year's enrollment, 678. $130 pays for 48 week's board, tuition, room rent and use of text books.

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The Sugar Bowl of The West

Is in the Arkansas Valley of Colorado. All records in sugar-beet culture have been surpassed in this valley.
This is the home of the famous Rocky Ford Cantaloupe and the Big Red apple.
Sugar Beets, Cantaloupes and fruit pay well. No other crop anywhere pays better.
The whole valley is under irrigation. Irrigation is an insurance against loss of crops through drought or flood.
There is only one way to reach this wonderful valley, and that is via

The Santa Fe

Address W. J. BLACK, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

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Located in the center of commerce, railroad facilities to nearly every point in Missouri, Kansas and other states without change or transfers. Good first class Fruit and Ornamental Trees, Shrubs, Roses, Vines, etc. A very large assortment for the City and Country trade. Write for our eighty-page descriptive catalogue. Address

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Long Distance Telephone No. 366 Red.

Free INFORMATION ABOUT Fruits

By Prof. Van Deman, fruit Editor Vick's Magazine, Rochester, N. Y. Sample & blank free.

Black Ben Davis.

Henry N. Wild, Sarcoxie, Mo., sends some correspondenct concerning the Black Ben Davis controversy, which is interesting, while probably not throwing any additional light on the matter. There is much interest manifested in this controversy, and the committe to be appointed by the Missouri State Horticultural Society will be an important one. Certainly great care should be exercised in its selection, for if the members are prejudiced of biased one way or another, the value of the report will be lessened.

Mr. Wild's correspondence follows:

"Black Ben Davis," said to be Missouri grown, having been raised in Lawrence county, ought not require an oracle to decide. In the may number of the Western Frut-Grower, page 10, under Major Holsinger's department, the matter of selecting a committee to be appointed by the Missouri State Horticultural Society, suggested by Mr. Goodman, is mentioned. "This is a good idea, and we hope an impartial committee will be appointed to decide it. So say I. So should all say."

Now, one of the important questions this committee will be confronted with is whether one apple known as Gano, having white flesh like Ben Davis, and another apple said as coming from Lawrence County, Missouri, labeled "Black Ben Davis" and "as dark-fleshed as Winesap," are the same, or different, appears an easy task and ought not to require an oracle to determine as to interior distinction of color, even though the exterior was to all appearances the same. This matter could, moreover, be more fully aided if the name of the owner of the orchard in Lawrence County, Missouri, was given, so that the committee could get the real facts, see the tree and fruit. If the apples furnished by a Mr. Crow really came from Lawrence County, Missouri, then the investigation would rightfully begin within this state, and said committee would no doubt be competent to decide if the tree showed up different from the Ben Davis type. Again, if the apples in this special locality were taken to make the comparison with specimens of Gano identical with those formerly shown at the Kansas meeting, then the competitive specimens would be like the exhibition as was passed upon by Major Holsinger at Topeka. Having discovered the Lawrence County, Missouri, "Black Ben Davis," then it would next be in order to make comparison with the Reagan of Washington County, Arkansas, renamed "Black Ben Davis," although conflicting with the rules of the American Pomological Society.

Major Holsinger says that in the discussion of the question he is found fault with by the nurseryman, while he is sustained by the fruit-grower. Now, how will he show this, as no one seems to be able to furnish specimens of fruit, not even the nursery firm sending the so-called variety out? And here let me cite Major Holsinger to a correspondence with one who has all along contended that the so-called "Black Ben Davis" is a new and different apple, but who now wants the true name. The correspondence follows:

LETTER NO. 1.

Sarcoxie, Mo., Feb. 24, 1902.

Frank Femmons, Ahwahnee, Madera County, Cal. Dear Sir—Enclosed find draft for one dollar, for which please send to us by mail sample fruit of Black Ben Davis, also a few cions from bearing trees of same, and oblige. Yours truly,

JAMES B. WILD & BRO.

LETTER. NO. 2.

Ahwahnee, Madera County, Cal., March 10th, 1902.

Sarcoxie Nurseries, Sarcoxie, Mo. Gentlemen—Yours of Feb. 24th, with enclosure, after some delay reached me yesterday. I am sorry that I cannot comply with your request. All my specimen apples of the Black Ben Davis have been sent out and I have but few culls left. If I had them would gladly send you some. As to scions, my stock is from Stark Bros., Louisiana, Mo., who no doubt would gladly help you in the matter, for I have always found them willing to do the best they could. For this "mountain fruit belt" and for many other places all over the coast where I've heard of it, I think more highly of it than any other apple I've ever seen—not so highly flavored as some, but very good, and apple that will give satisfaction in any market.

Now, I have no interest in this beyond a love for good fruit and a desire to see the best in every orchard and our orchard area extended wherever the best can be grown. Enclosed draft returned with thanks for your kindness. Yours truly,

FRANK FEMMONS.

P. S.—All specimen apples are engaged for the next two or three years. Would be pleased with your descriptive catalogue.

LETTER NO. 4

Sarcoxie, Mo., March 22, 1902.

Frank Femmons, Awahnee, Madera County, Cal. Dear Sir—Your favor of the 10th inst., received and contents noted. Please mail us one or more of the Black Ben Davis fruit culls that you mention having left, so we may see the texture of the flesh. It does not matter if they do not represent the normal size of the fruit, just so it is in reasonably sound condition and will show the texture of the flesh. We enclose 10 cents in stamps to cover postage. Inasmuch as you say you have all your specimen apples engaged for the next two or three years, please put us in communication with the parties who have engaged them, so we can obtain specimens from them. * * * * * Yours truly,

JAMES B. WILD & BRO.

LETTER NO. 4.

Ahwahnee, Madera County, Cal., March 28th, 1902.

James B. Wild & Bros., Sarcoxie, Mo. Gentlemen—Yours of the 22d with stamps and a request for sample Black Ben Davis come to me today, also March number of the Western-Fruit Grower. For nearly 60 years I've known something of the confusion often growing out of the use of local names for our fruits and I had supposed this Black Ben Davis vs. Gano was one of that character, but I begin to think there is something else in it. Many years ago, when living in Missouri, I knew of William Stark as one of the foremost horticulturists of the west. When I wanted trees I naturally turned to the old nursery—have had many varieties from there, and with one or two small exceptions, such as any one might make, have always found them correctly named, and no one could ask for better, or more honorable treatment than Stark Bros. have always given me.

If there is some mistake in this case I shall be glad to know it, for I want the correct name of every fruit I grow. You are all there in the native home of the two apples and many others of great value, and have more advantages in learning the true history than I can have at this distance. So you will please pardon me, if under the circumstances, I simply refuse to be drawn further into any controversy in this matter. Yours very sincerely,

FRANK FEMMONS.

Does that show that the fruit growers are sustaining him? Surely not. Now about the nurseryman. It might be well to cite Major Holsinger that even the nursery firm whose interests he is seemingly championing in this controversy is not sustaining him, for nowhere in their advertisements that I have seen have they called attention to the fact that the Black Ben Davis they were offering or sending out to be "dark-fleshed as Winesap" as he found them at the Topeka meeting, notwithstanding they state that "If others who have been spreading the report that Black Ben Davis and Gano are the same, were as careful to investigate and as honest to admit their mistake as Major Holsinger many planters would be saved the disappointment of planting Gano with the idea of getting the same or as good an apple as Black Ben Davis."

Now Major Holsinger says "We didn't even pass on the merits or demerits of the two apples. All we claimed was that two plates shown in competition, at that time, one labeled 'Black Ben Davis,' one 'Gano,' were not the same variety, noting certain diferences. I confess, like others, I did it superficially. I had not even taken the precaution to investigate the matter carefully as I should."

Surely competition does not enter in the matter, as Gano trees are sold at a much lower price. But deception if discovered after purchasing as a new variety one already on the market and named, does, and the man who buys "Black Ben Davis" at a higher price, and finds they prove to be Gano, will not consider he is twice blessed by reason of the additional amount invested, nor will he think kindly of any one who influenced him to do so.

Mr. Goodman sets considerable stress on Prof. Stinson's opinion, and why not, if he is painstaking enough to procure apples from the original tree for comparison? The question. "Who is Prof. Stinson, that he should pose as an expert on nomenclature," can be answered by reference to the list of committees of the Missouri State Horticultural Society where his name appears as one of the Committee on Nomenclature; also director of the Missouri State Fruit Experiment Station at Mountain Grove, Mo.

Will Major Holsinger inform the readers of the Western Fruit-Grower who Mr. Crow is that he puts so much stres on his statements as to the variety being Missouri grown, having been raised in Lawrence County, so much so that he then determined to make a closer inspection?

Mr. Stinson in his bulletins applies nomenclature in accordance with the rules of the American Pomological Society.

By all means give us a competent and impartial committee, and one, too, that will also put the varieties in question in the right nomenclature.

HENR N. WILD.

Going for the Doctor

through the storm and darkness while the suffering one at home is in danger, perhaps of death, is a terrible trip. Why not have a good, sure family remedy in the house? One that has proven a life saver in thousands of cases during the last forty years.

Watkins' Vegetable Anodyne Liniment.

Think what a world of terror and anxiety was saved this man.

DISPENSES WITH DOCTORS.

Middle Grove, Illinois, June 4 1901.

We have used Watkins' Vegetable Anodyne Liniment in severe cases of flatulent colic; have employed veterinary surg ona before, but rely entirely on Watkins' Liniment now, for family useas well as for stock. WALTER DIKEMAN.

Watkins' Liniment is not only a great thing in cases of serious injury through accident, but is always helpful in cases of Cold, Colic, Diarrhoea, Dysentery, Indigestion, Cuts, Burns, etc. It is equally good for **man** or **beast**. If by any chance we have no agent in your vicinity, write to us, and we will see that you are supplied.

A TREAT FOR ALL.

Our new Cook Book and Home Doctor, containing a hundred pages of valuable information in cooking, gardening etc. is out for '02. We mail it free to anyone sending his name and address on a postal card. Write at once and address

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H. W. CAMPBELL.

To Make Crops Grow in Spite of Drouth.

The man who has succeeded in solving this problem is H. W. Campbell. He is not a theorist, but has put his plan into practical operation. Last year he raised forty bushels of corn to the acre on his farm in Western Kansas, when his neighbors had a complete crop failure. Mr. Campbell is a regular contributor to

THE TWENTIETH CENTURY FARMER

This year it will publish articles by him which no farmer can afford to miss. Farmers who have been following his plan have been raising big crops every year in spite of drouth. Mr. Campbell has just published a manual of soil culture which fully explains his methods. This readable volume, together with six month's trial subscription to **The Twentieth Century Farmer** will be sent on receipt of fifty cents.

The Twentieth Century Farmer, 1628 Farnam St., Omaha, Neb.

PRINTING for Nurserymen and Fruit-Growers

We have the best equipped plant in the West for the printing of Nursery catalogues, price lists, blanks and stationery of all kinds. We can quote you prices on special engraved designs, half tone cuts, etc. Make a good impression on your prospective customer by having modern, up-to-date printing—it will pay you. Write us when in need of anything in the printing line and let us figure with you.

WESTERN FRUIT-GROWER

St. Joseph, Mo.

Spraying for the San Jose Scale Louse

Various mixtures have been proposed for this insect and a number have been found to be more or less effective. It is hardly possible, however, to apply any remedy with such thoroughness as to reach every scale, and because its natural remedies are few and its rate of reproduction very rapid, complete eradication is practically impossible, but by treatment each season it is entirely practicable to hold it in check. The choice of a compound with which to make treatment is not to be determined alone by its efficiency, but by its availability and practicability as well. Resin washes, composed of resin, potash and fish oil, have been found to be efficient, but are troublesome to prepare in a small way. The same is true of a whitewash made of lime, sulphur and salt. Whale oil soap, when used as strong as two pounds to a gallon of water, and applied with thoroughness, is a good remedy. Its cost precludes its use in many cases and the difficulty of finding suitable weather conditions for the application of it makes results with it quite variable. While not without objections, crude petroleum has been found, in most cases, to meet the requirements better than any other remedy yet tried at the Ohio Experiment Station. The thin, light grade is safer and less troublesome to use than the thick, heavy grade, although when diluted with water the latter is less objectionable than if used clear. Refined oil is more harmful than crude.

Good results have been secured in spraying scale infested trees with 25 per cent of crude petroleum and water, also with higher percentages of oil. Trees have been injured, and even killed, with 25 per cent of oil. On the other hand many thousands of trees, in all parts of the country, have been sprayed with clear crude petroleum, and with various percentages, without injury.

The manner of spraying has much to do with the effect upon the trees. When the material is applied in such quantities as to run down the limbs and bodies of the trees injury is almost sure to occur, even if the oil is diluted with water. Sometimes the operator, trusting to dilution to prevent damage, sprays excessively, or until the mixture runs down to the roots. The oil is thus unevenly distributed and unknown quantities reach certain parts of the tree, resulting in local injury.

Peach trees are very tender and should be sprayed with more than ordinary care. If whale oil soap is used the work should be done just as the buds are swelling.

The only safe way is to stop spraying before the material begins to run, and this rule applies to diluted as well as to clear, crude petroleum. With a suitable pump, like the Spramotor, 25 to 50 per cent crude petroleum can be used safely and economically, but if the pump cannot be relied upon to give accurate percentages then clear crude petroleum may be applied with any pump. A nozzle which will give a fine spray is needed in all cases, and for this purpose the Vermorel is satisfactory. Choose a day for spraying with crude petroleum when evaporation is rapid, as greater injury is done in damp than in drying weather. If the sun shines and the wind is blowing all the better. A light wind is not advantageous, but a brisk or high wind assists operations materially. When there is no wind begin at the top of the tree, spraying around the tree, and work downward rather than upward. Avoid

double applications, such as may result by spraying up and down the tree. If the wind is brisk hold the nozzle high and let the material drift through the trees. In this way trees some distance away may be covered almost as well as those near by. The operator must shift his position and change the height of the nozzle as experience shows to be necessary. When the wind changes another application must be made on the other side of the trees. There is less danger of overspraying in a high wind than when the air is calm, but there is also a greater probability of missing parts of trees. In early spring, just before the buds open, is the best time to spray, although no harm may be done if the work is performed earlier. The work can be done much better if the trees are first severely pruned by cutting off the ends of the branches. In case trees are seriously infested this operation is necessary in order to secure good results, after removing one-third or one-half of the top. Peach trees will endure very close pruning and no harm will be done if the top is all cut away and a new one started. Close pruning also assists the trees to recover from the weakening effects of the scale.

It is seldom advisable to destroy trees because of infestation, but it is usually better to prune and treat than to dig out, because new trees put in place of the old ones would soon become infested.

W. J. GREEN, Horticulturist.
Ohio Experiment Station.

Mr. Morlan Replies to Mr. Hitchings.

In the April number of the Fruit-Grower I notice an article written by G. M. Hitchings, in which he criticizes me because I had advocated taking scions for grafting from bearing trees, and in closing his article he says that he feared that I "belonged to that class of men who are like the old woman who said she was open to conviction, but she would like to see the one who could convict."

Now, perhaps this conviction business in this case might work both ways. And as Mr. Hitchings has made this statement concerning me, I think it but right that I give a few reasons for not being convicted. Mr. Hitchings says that any observant grower knows that soil varies in its capacity to produce fruit in different parts of the same orchard. A case in point: "There are ten Ben Davis set in our orchard, commencing where the soil is very fertile and extending to where the soil is poor, the rock being less than a foot from the surface. No. 1 always produces fine fruit, but as you approach No. 10 the fruit grows paler and smaller as the rock approaches the surface. Does Mr. Morlan think some pedigree scions would improve No. 10?"

Well, no, Mr. Hitchings, I hardly think so. I am so thick-headed that for the life of me I can't see where there would be any test in such an undertaking as that. I had never supposed that a fellow could resurrect a starved or dying tree by top grafting. But I'll tell you what will be all right, take your ax and girdle one of your best trees, then take scions from your No. 1 tree and graft your deadened tree, and I will guarantee that said tree will bear as fine apples as man ever looked upon.

Although Mr. Hale is brainy enough to successfully manage over 2000 acres in orchards, it is probable that the thought never entered his mind when he was taking scions from those extra trees of his, that he was wasting his time, and that those trees that he told about in the Rural New Yorker simply had an overdose of plant food. Not only Mr. Hale (who is known as the largest peach grower in the world) advocates cutting scions from the best trees, but Mr. Morrill, the great Michigan peach grower, said in an address before the Pennsylvania Horticultural Society of Deleware, "What you want is a tree that has been carefully propagated from sound stock and from bearing trees. Have the nurseryman, if you can, take his buds from the very best bearing trees, because they will bear at least one year sooner, and the uncertainty regarding the varieties is largely taken out of the business."

Prof. L. H. Bailey in his writings says "We know that much of the failure of orchards to bear is due to insects and fungi, and some of it to neglect of cultivation and lack of plant food; but there are orchards in which none of these causes seem responsible for the fruitlessness. Some orchards seem to be sterile by habit. Now, it is well known that no two trees of the same variety, and standing side by side, will bear equally, any more than they will grow equally. That is, every tree has an individuality in which it differs from all other trees, and this individuality may consist quite as much in variations in productiveness as in any other character. Furthermore, it is well established that scions or buds tend to perpetuate the features of the plant from which they are taken, scions from a normally unproductive or non-bearing tree may be expected to yield less productive progeny than those from habitually productive trees. It is also asserted that scions from young unbearing trees, particularly from nursery stock, give later bearing trees than those taken from old bearing trees, and there is much reason for believing this to be often true. At all events we cannot emphasize too strongly the importance of careful selection of buds and scions for the propagation of nursery stock.

"Florists know that the selection of a parent plant is a very important consideration in the selection of cuttings for the making of floriferous stock, and they are even particular about the part of the plant from which the cuttings shall be taken. Experienced grafters always prefer to take scions from habitually prolific trees, and they even exercise a choice between the branches of the same tree, always avoiding watersprouts, and preferring the hard, well ripened wood from the upper part of the tree. All scientific considerations commend these practices, for we are bound to look upon every branch as in some sense a distinct individual, since it is unlike every other branch, and is capable of living or being propagated when severed from the colony or tree to which it belongs."

R. M. Kellogg, of Michigan, says: "The present pernicious system of taking scions from young non-bearing trees in the nursery rows, continuously for many generations, not allowing them to bear fruit, is the chief cause of the deplorable condition of our apple industry. Under such treatment the gland system of fruit production is constantly wasting away, and must be rebuilt, which requires a long period of expensive tillage, and even then the fruit will vary greatly. Many orchards grafted in this way not only fruit sparingly, but they show so great a variation that it is difficult to determine by their fruit to what variety they belong. Go into the great strawberry markets, and you will see many berries of familiar sorts so changed you would scarcely recognize them; and these changes are permanently fixed in the plants from which they are taken. Florists who propagate largely through cuttings pay the greatest attention to bud variations by selecting those which make desirable changes to propagate from, and in this way have produced magnificent specimens of double flowers, and have greatly increased the blooming habit of plants, and thus originated a large number of new varieties. The magnificent double roses and variegated foliage plants are produced by this method. There is a long list of bud varieties in fruit produced in this way which are called sports."

Again he says: "Many experiment stations in the different states have made experiments along the same lines which are now being reported in special bulletins, showing that this subject has opened up new avenues of investigation and henceforth scientific plant breeding is to ocupy a leading place in all horticultural operations. The New York Horticultural Society has called an international congress to assemble in the summer of 1902, to be participated in by profesional horticulturists of all countries, when the whole subject of plant improvement will be considered. The leading agricultural colleges throughout the country have greatly enlarged this part of their work, and students are being taught how to select plants and seeds, and the time is now at hand when progressive fruit growers will only use plants scientifically grown."

G. Harold Powell, Horticulturist, Delaware Experiment Station, says: "That variations in trees or buds are transmitted by budding and grafting has been abundantly proven in horticultural practice. In some instances the variation has been propagated as a distinct variety, in others, slight differences have been added up for several generations and new strains have thereby resulted. The Delaware peach, of Delaware, originated as an early ripening branch on a Mountain Rose; the Pierce grape, of California, came from a variation on an arm of the Isabella; the Banks apple, of Canada, is a bud variation of the Gravenstein; thornless strains of oranges have been produced by continually taking buds from less thorny trees, and hundreds of flowers and ornamental plants have originated from bud variations."

L. A. Goodman, Secretary Missouri Horticultural Society, at Kansas Horticultural Meeting, said: "If my entire orchard of 2,100 acres were set with trees propagated from selected scions, it would be worth $50,000 more than at the present time."

I could go on and quote many more eminent horticulturalists who advocate plant breeding, among whom I might mention S. H. Derby, Delaware; Edward Van Alstyne, New York; J. H. Brown, Illinois; Prof. S. J. Hunter, Kansas; Geo. H. Patch, Wisconsin; and others too numerous to mention here.

Mr. Hitchings says he shall select the first plants made from plants grown on new soil. Now I claim when he has done this he has taken one step toward a plant with a record or pedigree, and if it is right to take plants from the first runners that set, because of more vitality from a longer season of growth, that it would be just as important to take scions for grafting from bearing trees of known vigor and productiveness, on account of a longer season of growth. To be sure, 'tis none of my business, whether Mr. Hitchings buys or believes in pedigree trees and plants or not, or whether he grafts his trees with a watersprout or not.

I will now give my strongest reasons for believing as I do: (I have grown the old Crescent strawberry for eight years on virgin soil, and had plants last fall, six months planted (grown by the hedge row system) that measured six feet around the spread of the leaves, and with as many as 25 crowns. Which will prove, I think, that my plants are not as poor as they might be. Last spring I bought some pedigree plants from a noted grower of this kind of plants; said plants came in due time and were planted between two rows of my own plants (all were Crescent). I might say that the pedigree plants were much smaller than my plants when set, and that my plants also had three weeks the start of them. I will say that I gave the pedigree Crescent, my own Crescent and 21 other varieties of strawberry plants that are growing side by side, as near the same treatment as a son of Adam could The pedigree Crescents caught up with my Crescents and they are today far in advance of them. A man that could not tell the difference between a strawberry plant and Mexican cactus could tell there was a difference between the two. Someone may say he pushed the pedigree the most, but I deny it. I might say that I have plants (in the two-acre patch in which this test is being made) that stand sixteen inches high, and I counted today as high as 420 young berries, bloom and buds on a single plant, said plants receive the same culture in every way as the rest of the patch. And I am sure that I would value plants from such a mother more than from a plant that only produced thirty berries. In a letter I have just received from the leading grower of pedigree strawberry plants in the world, he says: "You understand this squabble is among the plant growers, and not among my customers. This evidence is furnished in the fact that this year after filling orders that cleared the ground on thirty-five acres of propagating beds, over 7,000 in number, about 3,000 orders had to be turned down unfilled, and much more than half from old-time customers."

I merely quote above from this letter to show which way the wind is blowing. It matters not what Mr. Hitchings or myself believe in this matter, or whether he takes off his hat to me or not. The principle is right and the right will triumph The value of nursery stock to the fruit grower will in the near future be governed by the known honesty and skill of the propagator in selecting his buds, stocks and plants than by the size, smoothness of bark and cheapness at which they may be bought This is an era of progress and advancement. "Go forward!" is the watchword in horticulture as well as in other pursuits, and those of us who desire to keep up in the onward march must cut ourselves loose from our old moorings, throw all our prejudice aside, and try to rise to higher elevations in this, our chosen occupation.

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General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia....	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines...	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison.....	.75	1.00
Poultry Farmer, Des Moines.....	.50	.70

Give name and address plainly in each case.
WESTERN FRUIT-GROWER.
St. Joseph Mo.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT GROWER.
St. Joseph, Mo.

FRUIT FARMS.

DELAWARE, THE PIONEER FRUIT State, offers the greatest advantages for growing fruit and vegetables, being near the three best markets in the country—New York, Philadelphia and Baltimore. We offer below some bargains that surpass all others for SPOT CASH.

Farm	Orchard.	House.	Cash Price.
165 acres,	1,700 trees,	7 rooms	$3,300
280 acres,	4,000 trees,	7 rooms	7,000
115 acres	1,200 trees,	5 rooms	2,500
165 acres,	1,500 trees,	5 rooms	2,500
104 acres,	2,000 trees,	7 rooms	3,000
96 acres	1,800 trees,	5 rooms	2,100
87 acres,	1,300 trees,	8 rooms	4,000
204 acres,	1,500 trees,	8 rooms	4,250
132 acres,	3,000 trees,	6 rooms	3,400
147 acres,	1,200 trees,	5 rooms	2,000
100 acres,	1,100 trees,	6 rooms	4,000
137 acres,	1,200 trees,	6 rooms	3,200
135 acres,	1,000 trees,	7 rooms	3,000
98 acres,	1,200 trees,	9 rooms	6,500
212 acres,	6,000 trees,	7 rooms	5,300
135 acres,	1,500 trees,	8 rooms	4,500
228 acres,	3,500 trees,	5 rooms	2,300
165 acres,	1,500 trees,	6 rooms	3,500
250 acres,	1,000 trees,	9 rooms	3,500
180 acres,	1,500 trees,	6 rooms	2,500
84 acres,	1,000 trees,	5 rooms	2,500
193 acres,	1,000 trees,	6 rooms	3,000
114 acres,	3,000 trees,	6 rooms	4,000
65 acres,	1,000 trees,	7 rooms	2,000
60 acres,	1,200 trees,	5 rooms	1,000

All these farms are in the center of the "Great Delaware Fruit Belt," and one crop of peaches will pay the price asked for any farm. We have had twenty years' experience in growing peaches in Delaware and know whereof we speak.

BRADLEY & CO.,
84 Washington St., Chicago.

Fruit and grain farm, 90 acres; fenced; fair house, two barns, two cisterns, two ponds; 1,200 apple, peach, pear, plum, cherry, quince; two acres small fruits; on Frisco railway, 50 miles from St. Louis. For terms address Box 114, St. Clair, Mo.

A nursery plant and fruit farm of 25 acres inside of city of 11,000 in central Missouri. A1 shape, 7-room house with basement and furnace, greenhouse and office, large barn, enough nursery stock (50,000 apple) growing to more than return purchase price, living well, three cisterns, cherry orchard netted $360 last year, for sale on account of blindness of owner. Also 62½ acres 2½ miles from town, 10 acres apple orchard, 3 acres pears, 43,000 grafts planted this spring new house and cellar, living water in plenty, on the most traveled road into town, 5 railroads visiting Kansas City, St. Louis, Des Moines, Quincy, Omaha, etc. Address C. P. B., care Western Fruit-Grower St. Joseph, Mo.

Ten years' experience in Central Washington growing fruit, wheat, stock, etc. I can get a fine home for you here at a low price, if taken at once. No insects to destroy fruit or vegetables. No mosquitoes. Cool nights in summer. Mild winters. If you would like a farm here, or if you wish to come here to teach school, I will answer your questions to the best of my ability for 25 cents in stamps. C. B. JACKSON, Chelan Falls, Washington.

FOR SALE—Two small apple orchards. 45 and 34 acres. Standard commercial varieties. Apples bear every year in Arkansas Valley sub-irrigated land. Trees bore first apples last year. Crop now on. Sell both ($12,500.00 cost to raise) or separate. Non-resident owner. Must sell. Give time. Low interest. Address W. H. Underwood, Hutchinson, Kan.

FARM FOR SALE

583 acres; nearly 100 acres in cultivation; new 6-room house, good barn, outbuildings, etc.; good water, chalybete and freestone; good free range of native grass. About half of this farm is creek bottom, other half rolling; would make an ideal sheep ranch or good cattle or stock farm. Quite thinly settled community. Will sell all together or in small plats. Price $5 to $12 per acre, or the whole tract for $4,000. If you need such a farm, come at once or write J. H. H. BOYD, Gage. Tenn.

GRAND OPENING.—Growing stock, business, and lease, of small nursery. Good territory. Write for particulars. Nursery, Marcus, Iowa.

TRAIN RAN 180 MILES IN 180 MINUTES

SPRINGFIELD, ILL., April 16.—The Continental Limited on the Wabash Railroad has made a new record from Tilton to Granite City, making 180 miles in 180 minutes. This was with five stops—three station stops, one to change engines and one to take on coal. The actual running time was two hours and thirty-eight minutes. The run from Danville to Decatur, 71.6 miles, was made in 70 minutes, including stops at Tolono and Bement.—St. Louis Republic, April 17, 1902.

Peach Culture for Cold Localities

I think it is the height of folly to try to grow peaches in large quantities for market in localities where the trees have to be protected every winter to keep the fruit buds from being killed, the competition of the fruit from more favored locations, brought in by express, makes it unprofitable; but peaches can be grown on a small scale for home use in very cold places by selecting the proper location, cultivating and pruning intelligently, and giving the proper amount of winter protection.

It is said that the east wind blows nobody any good. It certainly never blows the peach grower in cold climates any good. It kills the trees in some instances and often kills the fruit buds if the trees are exposed to its fury. Never plant peaches on the east or south sides of buildings, fences or other protections. Plant the trees on the west and north sides, where the east winds cannot reach them direct. The driving cold east winds of winter and early spring are the source of more peach failures than anything else.

The soil for peaches should be loose and open, inclined to be sandy instead of clayey. Drains should be constructed to carry off the surplus water if necessary.

In selecting trees for a cold climate, get the medium sized grades. The extra large tree is more liable to make a great sappy growth which will be killed the following winter. Select the most hardy varieties, like the Crosby. If you are to buy from the nurseryman, write to some of the most reliable, well advertised houses, and get them to make out a list of the most hardy kinds, with prices.

The proper time to set a peach tree in the north is in early spring, at the same time you would set an apple tree. This is as early in the spring as the soil can be worked without packing hard when tread upon. For Northern New York, we think about the best time is the first of May. Dig holes a little deeper than the length of the roots, place several shovels of surface soil in the bottom, and set the tree so that it will stand not over an inch deeper in the hole than it stood in the nursery. You can tell this by the different color of the bark where the tree has been under the earth. Shake some loose earth among the roots and work it in among the smaller rootlets by gently shaking the tree. When the hole is full, tread well on the outside, bank the earth up around the stem, so the surface water that falls will run off. Drive a couple of stakes on opposite sides of the tree and support the tree between these with cloth strings. Put a mulch of fine straw around the roots to keep the soil moist and loose. When the tree starts to grow, take away the straw and hoe the surface over once a week. It is a good plan to cut peach trees back very severely when set in cold climates. They can be handled much better in covering for winter and are less liable to suffer from winds and winter killing even if not covered.

Never set peach trees at the north in the autumn. They come from the nursery, where they have been highly stimulated, are sappy and will almost always winter kill before spring. If set in the spring, they become acclimated to the conditions before winter sets in.

If trees are set on the west and north sides of sheltered places, like barns and high fences, they will generally go through the winters without injury in very severe climates. If they are somewhat exposed or the climate is known to be too severe for them, it is best to afford some artificial winter protection. Corn stalks make an excellent and cheap material for this purpose. They can be stood up around the trunk of the tree, and if the tree has been headed low will cover not only the trunk, but the branches, however, to provide a very deep covering for the peach. If the bark is merely shaded, it will often go through uninjured. If corn stalks are not to be had, a couple of barrels stood end upon end with the heads out, will, if braced so as not to blow over, often carry the tree through to perfection. You can set four stakes close up about a tree and pack in between them with leaves or straw and accomplish the same purpose. The stalks or other materials used to protect the trees should not be removed in the spring till all danger from sudden freezing are over. In pruning the peach, above all other tree fruits, it is very essential to begin right. If you start in on wrong lines it is almost impossible to get and keep a good shaped bearing tree by pruning. The trees when set out should be headed low. If medium sized trees are used, cut them back to one foot in length above the ground. This will cause them to branch vigorously. These branches should have two-thirds of their length, or thereabouts, cut off the following spring, and all interlacing branches removed, as well as the branches that turn towards the center of the tree. In after years keep the head of the tree as low as possible and free from branches back to within a few feet of the ground and begin over again. Never allow branches to interlace or the top of the tree to become crowded. Keep the head open so the air will circulate among the branches freely. If you get a great large top in spite of yourself and part of the fruit buds are killed, cut off the part that is killed and allow the other to remain and bear fruit. It hurts the looks of the tree to trim in this fashion, but remember that, primarily, you are after fruit, and not looks.

The fertilization of the peach tree is of the greatest importance. A well known grower once said that he preferred to set peaches on rather poor soil so that he could regulate the kind of fertilizer that went into that soil. It is a well known fact that an excess of nitrogen will make a sappy growth and result in the tree winter-killing. Avoid manures excessively rich in nitrogen. I don't think it will ever pay in the cold north to put barnyard manures around peach trees. The peach requires large amounts of phosphoric acid and potash, but not of nitrogen. It is probably safest to buy commercial fertilizers and use them gradually on the peach trees, not applying a large quantity all at once when you set the tree out, but a liberal sprinkling each year in the fall after the growth of the tree has stopped and the leaves have fallen. It will wash into the soil and become available for the growth of the tree in early spring. I should spread a quart of commercial fertilizer under each tree a little farther out than the branches run each fall and watch developments. The tree will show by its growth whether it is getting enough or too much fertilizer.

The diseases of the peach are most always caused by a lack of right fertilizing or of freezing of the trees. Regulate these matters and you have few diseased trees.

L. J. FARMER.
Pulaski, N. Y.

From California.

Western Fruit-Grower:

I think your idea of a Bureau of information for apple growers is very good indeed.

Santa Clara County has a very limited area of apple land, although the whole county is almost a solid orchard of prunes, peaches, and apricots. Our apple district is confined to the rich over-flowed bottom and consists of about 500 acres planted, probably one-half bearing. While all varieties tried do well, Newtown Pippins, White Winter Pearmain, Smith's Cider and Yellow Bellflowers are our money-makers. Last season our crop was heavy, about 100,000 boxes, mostly shipped East and to England. Packers paid an average of 75c per 50-lb. box, for No. 1, furnished boxes and packed them.

The trees grow fast and come into bearing very young—three-year-old Pearmains, Missouri Pippins and Bellflowers will produce this season at least two bushels to the tree.

Failure of crop from cold or drouth is unknown—of course we have our light crops on every-other-year varieties. The crop of this season will be about 75 per cent.

While we raise tomatoes, potatoes, corn, squash, etc., in our orchards the first three years, after that, the ground is kept clear and cultivated every month. A man who would sow grass in his orchard here, would be considered a fit subject for the insane asylum.

This district is situated about forty miles south of San Francisco, and twenty miles from the coast, giving us a cool, moist climate. While the interior of this state is too hot, the coast counties have an ideal climate for apples, and produce immense crops of fine fruit, but there is only a small amount of land that will grow them to perfection. W. H. HANNIBAL.
Santa Clara, Cal.

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Half fare excursions the first and third Tuesdays of each month.

Let us know what you want, and we will tell you where and how to get it—but don't delay, as the country is filling up rapidly.

Printed matter, maps and all information free. Address,

R. J. WEMYSS,
General Immigration and Industrial Agent,
Louisville, Kentucky.

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Is to be found in the Arkansas Valley, Colorado. Perfect climate, rich soil.
No drouths. Crops absolutely certain. Large yields.
Fruits, cereals, alfalfa, sugar beets. Irrigation is the cause of success.
Write for descriptive literature. The proper way to go is via

The Santa Fe

Address, W. J. Black, G. P. A., The Atchison, Topeka & Santa Fe Ry., Topeka, Kan.

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One of the most progresive seedsmen in this country is Hon. John Lewis Childs, of Floral Park, N. Y. His large, elegant catalogue is sent free to all who apply, and it presents an array of choice new Flower and Vegetable Seeds, Bulbs, Plants and Fruits which is really enticing. Mr. Childs has been in business 26 years, is well known and thoroughly reliable.

Send description of your orchard for our Crop-Reporting Bureau. No charge.

Poultry Department

CARE of Young Chicks.—The time required for hatching hens eggs is twenty-one days. Chicks or ducklings should not be fed for twenty-four hours after they are taken from the hens or machines. In our experience we find for the first two or three feeds rolled oats to be a good feed for chicks especially. Mix in this some fine oyster shells. In a few days begin to feed finely ground wheat or wheat screenings, provided you can get a good grade. As your chicks gradually grow begin to feed them a mixed ground feed of equal parts of corn, wheat and oats. Mix this thoroughly to a crumbly mass and give them one feed a day, rotating with fine ground corn or wheat. Scatter a little millet seed in litter of some kind. This keeps the little fellows busy and results in their always being hungry at meal time. Ducklings of course should never be fed hard feed, but equal parts of corn meal, low grade of middlings, bran, with five per cent coarse sand or fine grit. Mix this feed to a crumbly mass, but not sloppy. Feed them all they will eat four times a day for first three weeks. All raisers of poultry have found that cleanliness is essential to success. Wet, sloppy or sour feed should never be fed them under any circumstances. Their fountains, too, should be washed out every day and provided with clean fresh water. As your chicks grow older arrange the litter (whatever it is) so as to feed the youngsters all of their hard grain in this, so as to keep them hustling for their living. Avoid feeding too much corn in the hot months as it is too heating.

If your raise your chicks in small yards see that they have sufficient green feed of some kind as well as grit and charcoal. Should the last two items be neglected no matter what feed and attention you bestow on them they will never thrive. You should bear this in mind.

Don't Fail to Ventilate.—This very necessary duty is apt to be overlooked or entirely neglected by many poultry breeders. But if ventilation tells on the health of the household, it is no less important that the home of the poultry should be carefully watched in this particular. A very good plan to adopt in building new poultry houses (and this suggestion will apply to the improvemnt of old ones) is to arrange the sash on the southern side of the building so they can be removed in hot weather and inch mesh wire netting tacked over the windows. After the month of May these sash become comparatively useless. At all seasons of the year, but particularly in the summer, should attention be given to keeping the air as sweet as possible. This may be accomplished in a measure by having openings on back of your house, over which place slide doors. Be sure that they are opened for a few hours each day and the birds will repay you in bright looks and general good health.

Use Whitewash.—Sweet and Clean! How refreshing these words come to us, and what visions of brightness and comfort they bring. Now we will say a few words more on the subject of whitewashing the poultry houses thoroughly and often. There is nothing of more importance to the health and comfort of the birds. The feed may be ample, but a lack of cleanliness defeats all good efforts in other directions. Some breeders go through with a thorough fumigation before beginning with the whitewash, but it seems hardly necessary to do this unless you have let the building become overrun with lice. The best wash for this purpose is made of fresh lime. Place lime in a bucket or barrel and slack well with cold water, then add a little crude carbolic acid to the mixture. June is a good month to clean up all the poultry houses, coops, etc., inside and out. Whitewashing is done at this time to great advantage. It dries quickly during these warm days. In every pailful of whitewash put a handful of sulphur, although this is not absolutely necessary. Don't make any skips in doing the work. Fill every crack and crevice and if once over does not complete it repeat. The room will look as neat as a parlor when dry, and the birds will show off to better advantage than if the house is dark and dingy. This whitewashing should be done at least twice a year. There is no worse place for fowls than a dirty house.

Questions and Answers.

Q.—Will shipping eggs say 400 miles injure them for hatching purposes? A.—By no means. Eggs are shipped every season thousands of miles and good hatches reported.

Q.—I desire to establish a hennery of a thousand hens, and the most practical method of arranging houses. Size of houses and amount of land required for range to obtain the best results. A.—These are questions that cover a wide scope and are hard to answer from the simple fact that location alters conditions, etc. Houses for instance suitable for your location and climate would not suit this country, and vice versa. If you are inexperienced in the business we would advise you by all means to begin on a small scale and increase your plant as you learn the business by practical experience, otherwise failure is very apt to be your fate. A plant of a thousand hens properly constructed and managed means quite an outlay of ready cash, and the services of several hustling men. The writer would be pleased to give any information in his power if the party will write more fully as to his ideas, etc., regarding a plant.

Q.—Is cotton seed meal good for laying hens mixed in the soft feed? A.—Cotton seed meal is not good for your laying hens. Gluten meal is preferable to cotton seed.

Q.—I have 50 little chicks hatched from my incubator. How much should I feed them at a meal? A.—Always keep your chicks a little hungry. You may feed them a full meal at night. Variety is the spice of life with a little chick or duckling.

Q.—Can the prepared meats sold by poultry houses be kept for a long time and retain their freshness? A.—Yes. They are prepared with that view.

Q.—Is cabbage a good article of green feed for poultry and ducks? A.—Yes, we consider it about as good a green feed as can be had. We bury large quantities of it in the fall for winter use.

Practical Pointers.

Provide dust baths for your birds in the sun, where they will be dry, made of road dust mixed with powdered sulphur or carbolic powder.

If you wish eggs, make your hens work. Laying hens require more feed than the hens that do not lay, the main point to be observed is to keep the hens at work.

If a man expects to develop a paying business out of a specialty, he must be thoroughly honest, and ship nothing but the best of stock, treating his customers fair in every instance.

Comfort for hot nights means dollars and cents. A hundred thousand dollars is too low a figure to estimate the annual loss by lack of ventilation in summer months and too much in winter.

Let any farmer make a comparative estimate of work given to each cow and the labor he bestows upon his hens and then ask which pays the best. The hen pays cash for all work bestowed upon her.

Appearances may be deceitful in many cases, but they go a great way in fixing the market price of any commodity. Perhaps there is as much difference in price made by looks in poultry as any article sent to market.

There is no interest that better or more uniformily holds its own than the poultry interest and there is none on the farm more slighted. That neglected as it is and it should still pay, is good proof that it deserves more attention.

A walk through a large city market any day in the week would prove to the satisfaction of any ordinary observed that the profit or loss in poultry raising depends not so much upon the management of fowls before as after they are killed or dressed.

Poultry breeding is carried on largely by fanciers who deal in stock for breeding purposes and eggs for hatching, breeding strictly to color and shape of feather and body which they often sell at good round figures by the pair, trio or breeding pen. But there is good money in raising for flesh and eggs.

Do not omit a meal; feed at regular hours.

Young chicks do not eat much at a time, but they eat often.

No incubator has brains. It will regulate, but cannot think.

Your roosts should never be placed high. Place the on a level, and never one above the other.

Don't wait for some one else to do your thinking. Of what use are your brains if you don't use them?

As clover is bulky they cannot eat too much of it. Give the laying hens all the cut clover they will eat.

Milk in any form, sweet or sour, is greatly relished by birds at all ages. It pays far better to feed your spare milk to your poultry than it does to pigs. Try it one season.

Green bones, that is fresh from the butcher, when ground in a good bone cutter, cannot be surpassed for egg material. They are easily procured and lots cheaper than meat.

A party wishes to know if different articles of diet produce a different flavor to the eggs. Corn is said to produce dark yolks, while fatty matter and buckwheat give light yolks.

The reason there is so much said against keeping mongrels we should think were plain enough. In the first place they are not so profitable as pure breeds, and not as pleasant to the eye.

One who has been with fowls has observed their habits, their different conditions, the symptoms of disease and of health, and has learned many valuable lessons by actual contact with the fowls.

We repeat the secret of combining poultry with fruit is correct management. It has long been a customary remark with us that we would not think of conducting one branch without the other.

It is an error to suppose that eggs have no considerable use except for food purposes. They are employed in calico printing, in photography, in gilding, in classifying various liquors and in book binding.

Shoemaker's children wear broken shoes and tailor's boys ragged coats. The farmer's wife carries all her eggs to market and spares too few for her own use. Is there not room for reform? Charity begins at home.

You will learn after having been in the business sometime that no one rule can be laid down to fit every fowl. No two cases probably require the precise treatment. This is when the experienced fancier has the advantage over the beginner.

Egg eating is a vice. One hen learns it and soon teaches a whole flock. She finds a broken egg, discovers that it is good cating and will ever afterwards make way with all she can find. Fat hens, lazy hens, idle hens and hens that are fed no meat are subject to the vice. It is never in the breed, but the individual.

The Irishman makes a savings bank of his pig, but a number of months must elapse before killing time comes and dividends are declared. Raising cattle is still slower work. But a chicken is eatable at three months of age, and money paid for feed can be turned to cash again in three days through the medium of the well-filled egg basket.

The egg itself is animal food and though it can be produced from grain yet the hen is required, to be profitable, to produce an egg each day or as near that as possible, and her work must not be interrupted for the necessary nutriments. Meat in some shape cannot be supplied in any other form when the hen is making a business of laying.

What is worth doing at all is worth doing well and substantial commodious buildings for poultry will pay as well as for any other stock. Yet a poultry building need not necessarily be expensive; on the contrary, it may be a very simple affair, where the poultryman desires to avoid expense or for any other reason where it may be an object to him to economize the buildings he already has on his place may be utilized.

The time in which eggs may become fertile after a hen is mated with a certain male varies. In some cases six days may give true results, but it is best to allow from ten days to two weeks for certainty in the matter. A few days saved here will be a gain on the other end of the season.

With all the other directions which are given for the prevention of disease among poultry, none is of more importance than that of having clean, well ventilated houses.

Hay (clover) is prepared in various ways for the birds. Some cut it up fine and place it in the pens, letting them eat at will; while others boil it, using the tea for mixing a warm mash for the stock about twice a week.

It is frequently asserted that the sex of an egg can be determined by the shape of the egg, the position of the air cell, the curl or twist at the small end, etc The tests have been disproved by careful experiments which have shown that all such ideas and theories are erroneous and absurb.

Location has much to do with the production of first-class birds. It is certainly true that fowls thrive best in high and dry localities, with sandy or gravel soils. In a heavier or clayey soil they grow slow and their plumage never looks so nice. More care is necessary to keep them in good health where the soil is damp. In such localities, coarse sand or gravel should be placed in their yards at least once a year. W. P. LAIRD.

How to Get the Cash

In 1863 there was established in Kansas a publication, an authority on Western horticulture and the best and most reliable systems and methods of fruit growing in connection with other agricultural pursuits. That paper is the "old reliable" weekly,

Kansas Farmer

It has grown in strength, usefulness and prosperity as the Kansas City territory of the Missouri Valley, Kansas and Oklahoma has developed, and this territory is thoroughly covered by its weekly visits. Every farmer and fruit grower needs this 20 to 32 page paper. Annual subscription price is $1.00. Any subscriber to the Western Fruit-Grower, who will mention this advertisement, can have the Kansas Farmer sent one year half price—50 cents—as an introductory offer.

Any reader having anything for sale to farmers in the territory contiguous to Kansas City will find the Kansas Farmer the most profitable medium to use. Address

KANSAS FARMER CO., TOPEKA, KANSAS

Please mention the Western Fruit-Grower.

Chance to Get a Farm Paper Free

Send ten cents to pay postage, also names and address of five of your farmer friends, and we will send you the MISSOURI VALLEY FARMER for one year free. Regular price 50 cents. The Farmer is one of the best farm papers in the west and will tell you more about agriculture and live stock conditions in the great southwest than any other publication. It will tell you all about opportunities in the west for people without capital, and how you can obtain free homes and good farming lands. It is filled with wester stories and up-to-date articles written in the breezy style of the west. The Farmer is the most popular family paper in the west and has a greater circulation than any other publication of its kind.

Missouri Valley Farmer, Topeka, Kas

WE WANT MEN TO LEARN THE BARBER TRADE.

Only **8 weeks** required; years of apprenticeship saved by our method of constant practice, expert instruction, etc. We have placed graduates in leading positions everywhere. Comparatively no expense. Catalogue mailed free by addressing nearest branch of the

MOLER SYSTEM BARBER COLLEGES

New York City. | Chicago, Ill. | San Francisco, Cal.
St. Louis, Mo. | Buffalo, N. Y. | Minneapolis, Minn.
Omaha, Neb.

Classes for Ladies in Hairdressing, Manicuring, Facial Massage and Chiropody also.

MONEY IN POULTRY The farmer who raises for market; the beginner just starting in the business; the village poultryman; the keepers of a "few hens," on a city lot, will find help in THE POULTRY KEEPER.

An Illustrated Poultry Monthly Magazine. One of the oldest and best. Established in 1884. Contains advice on mating, feeding, housing, remedies for poultry ailments, special articles by experts. 50c per year, 10c for 3 mo. trial. Poultry Keeper Pub. Co., Box 902, Quincy, Illinois.

WANTED

A practical man of years experience in handling poultry, incubators, brooding systems, etc., desires position with good man having capital and suitable farm, who will erect a poultry and duck plant. Married man, no children. Can give A1 references from former employers and references required. Address Poultryman, care of Western Fruit-Grower, St. Joseph, Mo.

NO MORE CABBAGE WORMS

And no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both, and it is cheap. Each recipe 50c. Address JOHN KLENKE, 412 West Homestead, Pa

Caustic Soda for Bordeaux Mixture.

The Ohio Experiment Station has recommended the use Soda Bordeaux mixture in the treatment of vineyards for grape rot and the spraying of apple trees for the bitter rot of apple. There is trouble at times in getting caustic soda of the proper strength, but the formula for a standard brand is as follows:

Copper Sulfate (Blue Vitrol)....4 lbs.
Caustic Soda (Sod. Hyd.)..1 lb. 3 oz.
Water. to make .....50 gallons

The solutions of copper sulfate and caustic soda should be put into the barrel or tank only after nearly filling it with water. and afterwards thoroughly agitating by pumping the mixture back into the tank through the hose with the nozzle removed. The mixing of spray preparations of this sort outside the spray tank is unnecessary—the process may be best conducted by putting the ingredients directly into the tank— but not until water enough has been added to make them quite dilute.

Horticulture at St. Louis Exposition.

The postponement of the World's Fair at St. Louis until 1904, as announced in our paper last month, makes possible the making of the finest exhibits of horticultural planting the world has ever seen, and that steps to make these exhibits are being taken is shown by a circular sent out by F. W. Taylor, acting chief of the horticultural department. As we have said before, this exhibition at St. Louis should be educational in its value. Particularly should methods of commercial growers in training grape vines, pruning trees, planting strawberries, etc., be shown. What could be more helpful, for instance, than to see different varieties of strawberries shown under the various systems of planting, such as matted row, hedge row, hill system and all the methods practiced? If this is done, and it should be, the exposition will be of more than ordinary interest to hosticulturists.

The circular sent out by Mr. Taylor follows:

No class of exhibitors will be more benefitted by the change to a later date for holding the exposition than those who will make the outdoor horticultural exhibits. It is, therefore, a pleasure to make this announcement to them, and to call attention to the arrangements which are to be made for them.

The great area of the grounds. over a thousand acres, and their beautiful contour will furnish by far the best setting for outdoor exhibits of trees, shrubs and plants ever given by any exposition.

There are exposures in every direction, as well as considerable stretches of level ground, giving locations to meet every requirement.

In cases where for special reasons planting should be made in the Fall of 1902, every effort will be made by the department to meet the requirements.

For the Spring of 1903 it is expected that everything will be in readiness for all the planting that should be made at that time. This will include practically all trees and shrubs, as well as many of the hardy perennials.

Planting at that time will insure thorough establishment. Every facility in the way of soil, abundant water, etc., will be provided, and an earnest effort made to render every needed assistance by the management.

In due time special rules will be issued covering this class of exhibits, but in the meantime the following general observations may be made:

Exhibitors will be expected to deliver all stock, which has been accepted for exhibit, at the exposition grounds, all charges paid. This department will, when desired, receive, unbox, plant and care for all such exhibits, or should the exhibitor prefer, he may retain charge of the planting and care of his exhibit. In all cases the exhibits, as well as the persons in charge of them, will be under the jurisdiction of the chief of the department of horticulture, and subject to such rules and regulations as may be from time to time promulgated.

The Department of Horticulture will maintain a sufficient corps of competent gardeners and workmen to give proper care to all outdoor exhibits.

The early springs at St. Louis, as well as the long summers, supply an ideal opportunity to display to the best possible advantage all this great class of decorative and ornamental trees and plants, and it is sincerely hoped that the nurserymen of the country will do their part toward bringing about the splendid results that may be attained.

The acting chief of the department has been requested by President Berckmans to present the subject "The Nursery Interests at the St. Louis World's Fair" at the meeting of the Annual Association of Nurserymen at Milwaukee, June 11th to 13th.

Organization in Illinois.

Our fruit growers have lately organized, believing that the experience and observation of one may be of benefit to the others. Our organization represents 600 acres of commercial orchards.

We have a good prospect for apples —probably two-thirds of a crop—they have been thoroughly sprayed, most of the orchards cultivated, and if present prospects hold out, there should be six to eight thousand barrels of Ben Davis, Wine Sap, Smith's Cider, Missouri Pippin. Pears are about a half crop. No peaches. I have never seen apples and pears of such uniform size, nor so free from worms. Unless the later brood of codling moth attack the fruit, it will all be No. 1.

Many unsprayed orchards have been devastated by canker worms; this is particularly true in the county west of us—Calhoun. Liquid spray is most generally used here, although some growers use only the dust process, and others use it on a portion of their orchard. I have a few fine Ben Davis and Wine Sap kept since last fall in ordinary storage, and they are free from blemish of any kind—none to sell. W. E. CARLIN.

Jerseyville, Ill.

National Educational Association, Minneapolis, July 7-11, 1902.

For this popular gathering the Great Western Railway will on July 5-7 sell excursion tickets to Minneapolis, good to return July 14 (or Sept. 1 by payment of 50 cents extra) at one fare plus $2.00 (membership fee) for the return trip. For further information apply to any Great Western agent, or J. P. Elmer, G. P. A., Chicago, Ill. H. I. Fay, Ticket Agent, St. Joseph, Mo.

I send one of the best applications for apple and peach trees to prevent borers: Mix 12 ounces of crude carbolic acid, one quart of soft soap, with three gallons of water, and wash the trees from the forks to the ground, on about the first of June and September, cleaning the rough bark off first. The bark will be yellow and the tree vigorous. I know from experience.—W. L. Faulk, Moberly, Mo.

A NURSERYMAN HONORED.

Orlando Harrison of J. G. Harrison & Sons the well known nurserymen of Berlin, Md., has been re-elected mayor of his thriving little city, his re-election being a strong tribute to the ability and faithfulness with which he has discharged the duties of his position during his first term. Mr. Harrison is in no sense a politician. He is a business man(first, last and all the time, which probably accounts for the fact that he made so good a mayor that the people insisted upon electing him a second time. He was born in Sussex Co., Delaware, but for twenty years has lived in Maryland, working with his father and brother in the development of one of the most extensive fruit tree growing businesses in the country. The firm has nine firms, all devoted to growing nursery stock, and all under the personal direction of Mr. Harrison. Every years several millions of peach and apple trees are grown, not to mention other stock. In addition to this work, Mr. Harrison is vice-president of the Exchange & Savings Bank, Berlin, a director of the Berlin Building and Loan Association, and a member of several other associations and societies. With a large and growing business on his hands, he still finds time to take part in any movement for the advancement of public good, and is never too busy to do a friend a good turn. We believe that is one of the main reasons why he is so successful a business man. He believes in progress, and goes on the live and let live principle.

A WORD IN TIME.

Elsewhere in this issue will be found the advertisement of Rippley's Fly Remover, Lice Killer and Disinfectant, manufactured by Rippley Hardware Company, Grafton, Illinois, a well-known and reliable firm who have advertised their various lines in our paper for several years. We have just received a copy of their 72-page Breeders' Supply Catalogue, which is full of valuable information and money-saving tools for farmers, fruit-growers, stock and poultry breeders. In their catalogue they explain and prove by endorsements from some of the most noted breeders, dairymen and farmers using Fly Remover, claiming that their animals are protected and that their cows give not less than one-fourth more milk at a cost of ½ cent per day, when they used Rippley's Fly Remover. We advise our readers to give it a trial, as it is very cheap. We all know that cattle cannot do well if they are compelled to fight flies from morn till night. It will also protect work horses, kill lice on hogs, in poultry houses and acts as a disinfectant, and promotes health. We advise you to send for copy of their Breeders' Supply & Sprayer catalogue at once. Any orders entrusted to them will be filled without delay.

B. F. Coombs, of the commission firm of B. F. Coombs & Bro., Kansas City, Mo., has gone to Parker, Kan., to superintend the work in his large orchards there. Within the last few years Mr. Coombs has planted large orchards, until today he is one of the largest orchardists in the country, if not the very largest. He has nearly 1,900 acres in apples and last year had a crop of 136 cars. He reports that this year he hopes to have as many apples, for the trees are a year older and the weather hids fair to be more favorable. He runs two compressed air sprayers, drawn by six horses each, and one steam sprayer. Jonathans this season are shy, Mr. Coombs reports. In conclusion Mr. Coombs says: "Your paper is a good one; I have taken it in Kansas City for several years, and now want it here at Parker." (If a man with nearly 1,900 acres needs the Western Fruit-Grower, how much more does the small grower, with only a few acres from which to secure a crop? A word to the wise is sufficient. Everybody who grows any quantity of fruit needs the Western Fruit-Grower.

Readers of the Western Fruit-Grower who took our advice and placed their orders for nursery stock early not only got the varieties which they desired, but they saved money. Many of the commercial varieties of fruits were sold out early, and prices of nearly everything in the nursery line were advanced all during the buying season. There is nothing gained in delaying ordering nursery stock at any time and often much to be lost. Strawberry planters have had a hard time. One large plant grower wrote us that he had orders for $4,000 worth of plants which he could not supply. This was the case with nearly everyone. The acreage for plants will be larger next season, and we hope the season will be more satisfactory.

The Hart Pioneer Nurseries, Fort Scott, Kan., have changed hands, Major Geo. Combs, A. B. Combs and W. E. Brooks being the members of the new company. The name of the nursery will not be changed, and the business will be largely increased. The gentlemen now having charge of the nursery plant have had years of experience and a profitable career is predicted for the company.

I wish you every success with the best horticultural paper I ever saw.—J. W. Lewis, Brandenburg, Ky.

TAKE
PRICKLY
ASH
BITTERS
For Indigestion, Constipation, Kidney Troubles.
IT CURES.

RIPPLEY'S
Spraying Mixtures
undeniably constitute the best, simplest and most reliable form in which to buy spray material. They are put up in cans and bottles, in the most concentrated form and need only to be mixed with water and they are ready for use. As they are all liquid in form there can be no precipitation or settling to the bottom. They always remain in solution and there is no consequent danger of burning foliage and injuring plants, vines, trees, etc. Sold by dealers and agents.
Use Rippley's Prepared Spraying Mixtures and Rippley's Spray Calendar and Make a Success of Spraying. Our Calendar tells when to spray and what solution to use on the various Trees, Plants, Vegetables, Cotton, Tobacco, etc.
Write at once for catalog of Spraying Mixtures, Sprayers and Breeders Supplies. Order early.
Rippley Hardware Co., Box 217, Grafton, Ill.
Manufacturers of Sprayers and Breeders' Supplies.

Cheap Lands Desirable Locations
Pleasant Homes

Low-priced fertile lands adapted to diversified agriculture, and in a section of country free from extremes of weather; near to the best markets and unexcelled transportation facilities, good schools, congenial society, can be secured on easy terms along the line of the

SOUTHERN RAILWAY
AND
MOBILE & OHIO RAILROAD

Excellent location for general farming, dairying, trucking, fruit growing and stock raising.

THE SOUTHERNFIELD and other illustrated publications, giving information of advantage to farmers, manufacturers and visitors, are forwarded upon request.

M. V. RICHARDS, Land and Industrial Agent, Washington, D. C.

CHAS. S. CHASE, 701 Chemical Bldg., St. Louis Mo.
J. F. OLSON, 225 Dearborn Chicago, Ill.

A Good Route to Try

FRISCO SYSTEM

It traverses a territory rich in undeveloped resources; a territory containing unlimited possibilities for agriculture, horticulture, stock raising, mining and manufacturing. And last, but not least it is

The Scenic Route for Tourists.

The Frisco System now offers the traveling public excellent service and fast time—

Between St. Louis and Kansas City and points in Missouri, Kansas, Arkansas, Oklahoma, Indian Territory, Texas and the Southwest.

Between Kansas City and points in Tennessee, Alabama, Mississippi, Georgia, Florida and the Southeast.

Between Birmingham and Memphis and points in Kansas, Arkansas, Oklahoma, Indian Territory, Texas and the West and Southwest.

Full information as to route and rates cheerfully furnished upon application to any representative of the Company, or to

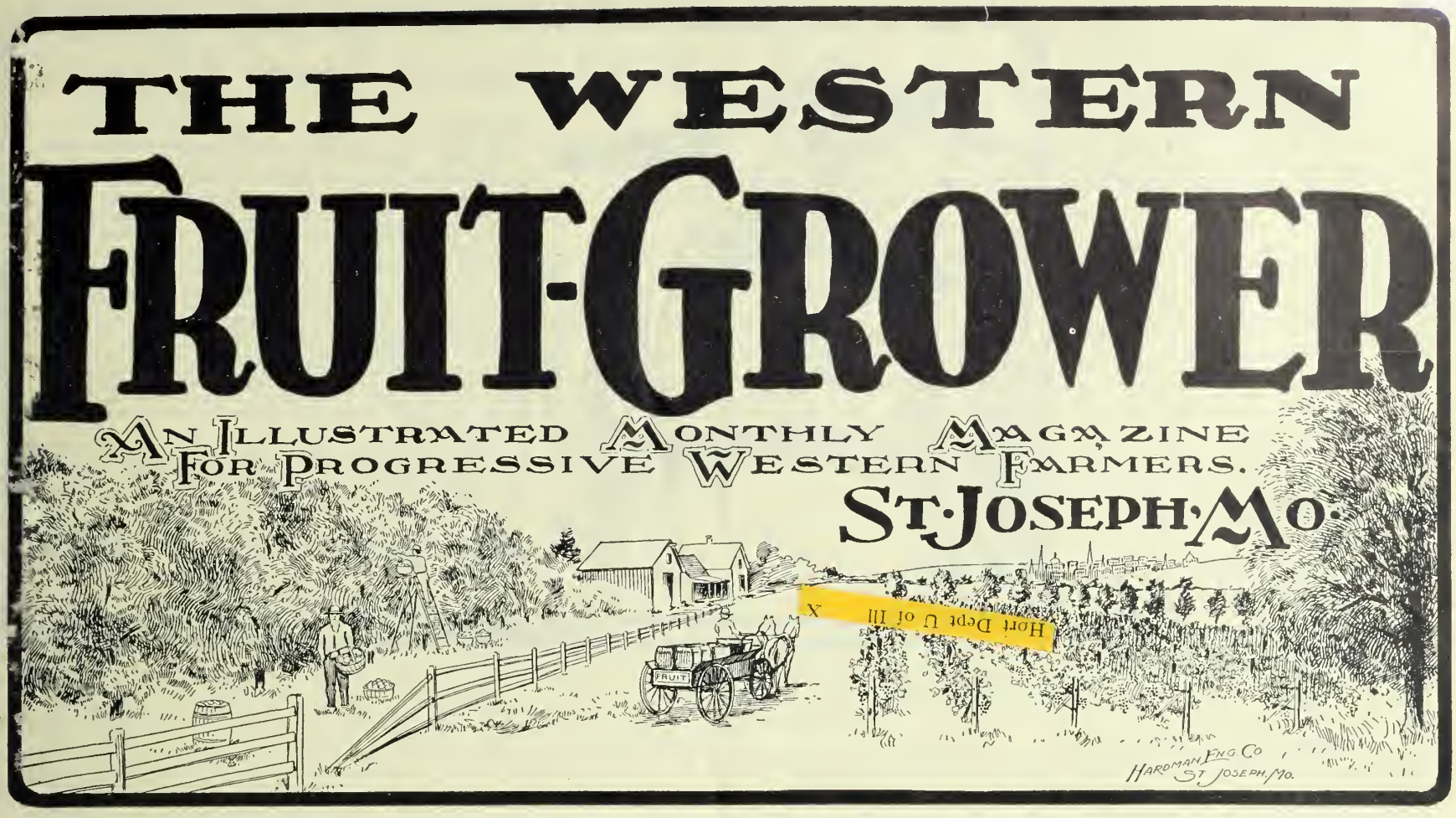
Passenger Traffic Department,
Commercial Building,
Saint Louis.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.
PAW PAW, MICH.

Volume Twelve JULY, 1902 Number One



Hort Dept U of Ill X

Cover Crops in Apple Orchards

THE editor of the Western Fruit-Grower and many of its contributors have wisely emphasized the importance of orchard cultivation and the necessity of a "dust blanket" to conserve moisture. In dry seasons like the past the soundness of this doctrine is manifest on every hand, especially at marketing time. There are many fruit growers, however, who do not sanction such treatment for the bearing orchard, and their ideas are not altogether groundless. The best orchard soil is the clay ridges, which gives proper air drainage and good color and flavor to fruits. These locations, however, if given clean culture, are the very worst places for washing. The melting snows and rains of a single spring carry down tons of soil nad leave the land badly ditched and gullied. Hence, the orchardist is apparently confronted with a dilemma of submitting to this treatment as an accompanying evil of clean culture on the one hand, or practice "sod culture" on the other. Certainly in passing through many of the orchards of southern Iowa and Missouri one is impressed with the fact that many have chosen the "t' other."

There is a system, however, which, in a large measure, partakes of the good points of both methods. Briefly, this is clean culture throughout the rapid growing season and then seed the land to some winter cover crop. This crop is co-operative, and not competitive, as it comes on at a time when the wood is hardening and ripening for winter and the using of the surplus surface moisture aids in this process.

The roots of these plants act as a soil binder, prevent washing to a large degree and thus overcome a serious objection to the clean culture system. A second important advantage is that the crop when plowed under the following spring adds materially to the humus supply of the soil. The water holding capacity of the sandy soil may readily be increased 25 per cent or more by the addition of humus. Pears contain about 76 per cent of water, apples 64 and strawberries over 85, hence it is apparent that the fruit grower, as well as the dairyman, should have an ample supply of water. Soils such as those of the Ozark region are especially deficient in humus and the benefits from manuring may be more important in the humus supplied than in the amount of actual plant food added. Humus also affords an excellent medium for the storing of plant food and prevents its leaching away until used by the plant.

Again, if some nitrogen gatherer, a member of the clover family, is used, an important element of food is added. The most satisfactory crop we have found for this purpose is Hairy or Sand Vetch. This is a member of the clovers, bears a large seed which germinates reasonably well even if the ground is not real moist, and makes a good cover for winter. When plowed under in the spring the soil is richer in humus and nitrogen. Mammoth red red clover has been tried, but often fails to make a good stand when sown at this season. Canada field peas made a fair cover and grew until heavy late frosts. Soy beans were killed by the first frost, before making sufficient cover—too tender for Iowa. Among the non-nitrogenous crops oats, rye and buckwheat do very well, especially rye. The time for sowing should be at the close of the active growing period, which of course varies with the season and locality. Here it has averaged the last half of July. As moisture is not usually abundant at this season thorough preparation of the seed bed and rolling after sowing the seed is important.

A. T. ERWIN.

Iowa Experiment Station, Ames, Ia.

HAIRY VETCH, 18 INCHES HIGH. SOWN JULY 25TH.

(The illustration shown herewith shows crop of hairy vetch 18 inches high, sown July 25. This was at Iowa Experiment Station, and the illustration shows a good growth even for late planting, in a northern latitude. Mr. J. H. Crowley, Rocky Ford, Colo., has grown hairy vetch, and will furnish us with photographs showing the growth he secured, and also the nodules of nitrogen on the roots. If the photos are suitable we will have cuts made and present them later. The subject of cover crops is a very important one, interesting all orchardists. Ed.)

Notes from Benjamin Buckman.

I have read with interest the article from Mr. Halbert on "Pecan Culture." Although part of his paper may not apply to the states north of Arkansas, yet he gives many valuable ideas that are of use to us of the Middle North. Just how far north the Southern type of pecan will thrive seems to be a question on which authorities differ. "Southern varieties would not be hardy very far north," and this has been my understanding of the situation. Yet I have the Columbian and Money Maker from Mr. James of Louisiana, that were budded two years ago and have not at all been injured by winter so far. Now, if these buds from Mr. James were true to label, this is encouraging, for many kinds of fruit were badly damaged during the past winter, among them persimmons, chestnuts, peaches, grapes and even some of the plums and apples.

The Columbian put forth this year many catkins and would probably have fruited had it not been for the myriads of May beetles that have kept all of my pecans, chestnuts and persimmons two-thirds denuded of foliage for the past month. This shows that either the Southern pecan bear much earlier than our native seedlings, or else that top-working has the effect to hasten the fruiting period.

I have about 75 pecan trees—Northern seedlings—planted in 1883 (and more later on). The first planted were fully six feet in height when received. I cut back severely and took special pains when planting and in after cultivation. The soil was black loam, the ground level. June 1st had not given me a bursting bud and I supposed that not a tree would live. About the middle of June I told the "man with the hoe," (cultivator) that he need not be particular about watching the single-tree, for the trees were all dead and could not be damaged. At the same time I went along the row inspecting. To my surprise I found a bud here and there starting. I countermanded the single-tree order, and have a solid row of fine pecan trees.

Now, these trees did not bear at 5 years; scarcely at ten. About the first pecan showed itself in ten years. Many trees have not borne yet. No tree has yet given a half bushel of nuts in a single season. The row has a height and spread of fully 25 feet, the limbs slightly interlocking in the row, but

there is plenty of space sidewise. The pecan here needs 40 or 50 feet, unless one wants the lower limbs to die out—making more climbing to get the nuts. There is no money in raising the Northern pecan here. What show there may be in the Southern is, as we have seen, still a question. Of course, the prices named by Mr. Halbert will not apply to the general crop, for as soon as the country is well stocked up no one can hope to realize more than 25 cents a pound for the nuts—our natives sell for about 10 cents, or even in the pecan bottoms 30 miles north of here, as low as $2 per bushel in seasons of plenty.

Squirrels, blue jays and yellow hammers are too much at home in a pecan grave. Squirrels really plant pecans, for of the many nuts which they carry off and bury for future use many are left to germinate and make trees. I am also inclined to accuse the squirrels of another act which seems a little startling at first though in fact I am scarcely expecting the reader to fall in with my theory. Having found several limbs—six inches in diameter—girdled at the junction with the body of the tree, I theorized that the sqquirrels were thus instinctively providing themselves with a hollow tree for a home. What do you think of it, will it wash?

Two-years-old seedling pecan trees are not particularly difficult to transplant, only one must not be afraid to go down deep and get 1½ to 2 feet of root, and firm solidly when transplanting. To transplant when older it is best to cut tap root at one or two years to make roots branch. The natives are hardy here, as hardy as a Ben Davis apple, and everyone on a farm should have a few pecan trees even if it does not pay to plant for market.

In "Questions and Answers" in June issue, regarding the first query, relating to red spots on currant leaves, I would suggest that the spots are rather large and the leaves much crumpled and wavy. I suspect that they are caused by aphides on the under side of leaf. The Long Branch Holland is particularly susceptible to such injury.

Regarding article, on page 11, June issue, under head of "Who Is to Blame?" I would say:

Why not make the entomologist responsible? He is paid to attend to this work and if he don't do it—sure enough, "Who Is to Blame?" If his certificate is worthless, better do away with the expense of inspection and allow small dealers and farmers to sell in their small way as formerly. Legislatures are piling up unjust, oppressive and useless laws such as the game and bird laws, the fish laws, laws prohibiting the sale of pure, wholesome foods, even under their own name, etc., until we are not certain that we have the right to breath the pure air without a permit from the state.

BENJAMIN BUCKMAN.

Farmingdale, Ill.

Here's a Chance for You.

A reader of the Western Fruit-Grower, after expressing his appreciation of the paper, offers a suggestion to help increase the paper's circulation by the first of January. He says:

"I want the Western Fruit-Grower to have a circulation of 50,000 copies, for it will mean a better paper for the readers, at the same subscription price. Now, I suggest that say, one thousand of the readers of the paper pledge themselves to get at least five new subscribers before the first of January, 1903. I have never secured subscribers for any paper in my life, but I know I can get five of my neighbors to take advantage of your 'Five-for-a-Dollar' offer. If one thousand of us do this, it will mean a jump of five thousand subscribers by the first of the year. Then we will not only have helped the paper, but will have done our neighbors a really good act in putting them in touch with the Western Fruit-Grower and its great family of readers."

Now, of course we indorse that plan. As explained elsewhere, our circulation grows principally through the efforts of its readers to send in new subscribers, and if one thousand of them will pledge themselves to secure at least five new subscribers each by the first of the year 1903, then we know there will be no doubt about the improvements which will be possible during the coming year. Shall we open a list of those who will pledge themselves to do this? Don't you think you can afford to do this, for your own sake, and for the sake of your neighbor, to say nothing of helping along a fruit paper which should have a greater following than at present, and a corresponding wider field of influence? What say other readers? One subscriber a month each from now until next January? If you are with us in this plan, fill out the blank printed elsewhere in this paper, or drop us a postal card to this effect we will send you five coupons entitling you to send in new subscribers at 20 cents each, and when the five have been returned we will send, with our compliments, a copy of M. Crawford's book on "Strawberry Culture" to the person sending in the list. Now, how many will join this "Thousand Club?"

Sudduth Pear Hasn't Blighted.

It is reported that pear blight is more prevalent this season than for a number of years, and in many sections many orchards have been ruined. Some have wondered if the Sudduth pear, which has never blighted before, has suffered this season, but the following, from the Normal (Ill.) Advocate, would indicate that such is not the case. This article also shows the extreme early bearing habits of the Sudduth pear trees:

"So much is being said about the Sudduth pear that the editor of the Advocate saw fit to go on a tour of inspection for a few hours this week. We first went to Mr. J. Y. Thorp's orchard in the southeast part of Normal where we found every tree in bearing. On one four-year tree Mr. Thorp and the writer, counting and estimating, placed the pears on one tree at 1,000. Next we saw the orchard of Lewis Sailor consisting of about 75 trees that were perfect beauties. From there we went to H. J. Shaffer's orchard of 120 trees planted May 16, 1898, which was decidedly the prettiest orchard for its size and age that the writer has ever seen. This orchard is also bearing.

"We then went to the nursery of Augustine & Co., and there saw the young trees in bearing in the nursery row. We next visited two of Mr. Pierce's orchards of about 500 Sudduth trees, just west of the University. These trees also showed the characteristics of vigor and symmetry in growth of the Sudduth. The Sudduth planted in the University campus also are starting out nicely. All these trees are growing inside the corporation of Normal. The fact that all other varieties of pear trees are suffering more with blight this year than perhaps any year in the past gives the Sudduth pear a prestige over all other varieties."

The Sudduth, it will be remembered, is sent by Augustine & Co., nurserymen, Normal, Ill. A letter from this firm says that in September a pilgrimage will be made to the original tree, now a great many years old, and which is still bearing fruit and has never blighted. A booklet giving the history of the Sudduth pear will be sent free on application to Augusine & Co., Normal, Ill.

Lye Soap for Borers.

I notice in the June issue of the Fruit-Grower Major Holsinger, in answer to E. S. N., Vallonia, Ind., says that lye soap, while good for the trunk of a tree, will not keep out the borers. Now, I think that whatever will give the trunks a healthy, glossy appearance, as the Major admits the lye soap will do, will keep borers out to a certain extent. I can show some trees six years old free from worms, and in examining my young trees, three years planted, this spring I did not find a worm, and it adjoins an old orchard badly infected with borers. I have used nothing but lye soap and lime water. After that I used soap and lime mixed and put on as a wash with a swab made by tying a cloth on a stick: this did the work thoroughly. I put on this preparation twice a year, the last of May or first of June and again the last of August or first of September, examining the trees carefully each time before applying the wash.

G. E. ADAMS.

Darlington, Mo.

One Woman's Work.

In connection with the article in this issue, in which a thousand of our readers are asked to pledge themselves to get at least five new subscribers before the first of the year, we wish to publish an extract from a letter received sometime ago from Mrs. D. A. Parker, Graysville, Tenn. "I took a copy of the Western Fruit-Grower and started on foot to town, two and a half miles distant, stoping at each house on the way. Left home at 9:30 a. m. and got back shortly after 6 in the evening; reached home with tired feet, it is true, but feeling I had helped others to start right in horticulture made me happy. We know by experience that good literature is most helpful, for we are helped by the experience of others. We have a peach orchard which is a marvel of health and beauty, and printed instructions played a part in producing this result."

Mrs. Parker sent names of sixteen new subscribers. Now, we have received larger lists from some of our readers than this, but we don't think one ever came which was more appreciated. This one shows service—and that is what counts. We simply submit this to show how one woman manifested her appreciation of the Western Fruit-Grower, and how she helped her neighbors. You may not be able to get sixteen new subscribers, but can't you join the "One Thousand Club," and get five before the first of the year? If you will do this, send your name on postal card, and we wil send you coupons, so you can send the names one at a time, if you have not five at once.

A Shipment from Ward's

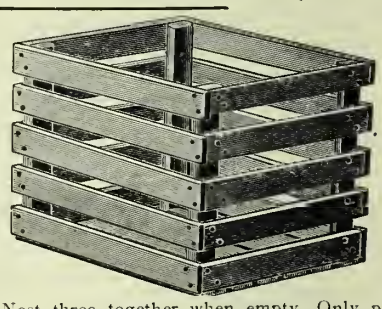
There must be considerable satisfaction to every man when he realizes that he has done something wise and creditable, especially when it directly concerns the welfare of himself and family. Here is a man who is hauling a shipment home, content with the knowledge that all his supplies for several months have been purchased at wholesale prices, or in other words at a saving of about 30 per cent over his home prices.

He has no cause to worry as to what he will find inside the boxes. He has received shipments from us before and knows that everything will be found first-class and exactly as represented. Even if something is wrong, he knows that no firm in the country is more anxious to make it right than we are. We have customers everywhere—in every nook and corner of the United States. Beyond a doubt some of your neighbors deal with us. If you are not a heavy buyer, why not join with a neighbor and get your supplies by freight? It only takes 100 pounds to make a profitable freight shipment.

You may need a catalogue to start with. Our 1,000 page catalogue containing over 70,000 quotations and 17,000 illustrations will be sent on receipt of 15 cents to partly pay the postage. This catalogue is already in the homes of over 2,000,000 careful buyers and should be in your home also. Send for it to-day.

Montgomery Ward & Co.
CHICAGO
The house that tells the truth. 11

GINSENG SEED
A few thousand first class guaranteed seed for sale at reasonable price.
LINCOLN, KEENE & CO.
Box 585. FREMONT, NEB.

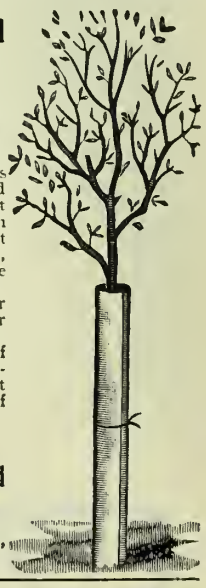
VENTILATED BUSHEL CRATES

Nest three together when empty. Only perfect crate on the market. Price, ready to put together, $7 per hundred. Write for full particulars to
The Geneva Cooperage Co., Geneva, Ohio

PROTECT YOUR TREES

With the Davis Wire Fruit Tree Protectors if you desire your fruit trees to grow without being injured by rabbits. If you value your time and labor this is the cheapest and best device known. Absolutely perfect. Praised by growers who are using them. Send for circulars, testimonials, etc. First cost the only cost. $2.25 per 100; $19.50 per 1,000; 5,000 or more, $17.50 per 1,000. Direct all communications to JOHN W. DAVIS, Jr., Clarksville, Mo.

STRAWBERRY Fall of 1902 PLANTS
96 Varieties. Catalogue Free.
North Star Strawberry Plant Farms
COKATO, MINN.

Canning Machines
SPECIALLY SUITED FOR HOME CANNERS.
Send for circular describing small and large canning outfits. Hundreds of them in use. Write at once to
M. FOERG, - Meridian, Miss.

We Believe in Protection
TREE PROTECTORS

will protect your trees from rabbits, mice and borers; will also protect the stems from sun scald, and can be left on during the summer, and will not injure the tree.
The cut represents our Tree Protector after having been applied.
Same are made of veneer, and are pronounced the cheapest and easiest applied of anything ever used.
Write for prices.
St. Louis Basket and Box Co.
Second and Arsenal Sts., ST. LOUIS, MO.

ORNAMENTAL LAWN FENCE

Save 20 to 25 per cent. by buying direct from manufacturer. MADE OF STEEL.
CHEAP AS WOOD
Special Prices to Churches, Cemeteries and Large Parks. 32 page Catalog free.
COILED SPRING FENCE CO.
Box 413 Winchester, Ind.

The Missouri Meeting

THE summer meeting of the Missouri State Horticultural Society at Eldon was interesting throughout, althongh the attendance was not so large as is usually the case. Eldon is hard to reach by rail, and this kept many persons away. The selection of Eldon as a meeting place was, however, not inappropriate, for there has been little interest taken in fruit culture there heretofore, although fruit will do well there. With the building of two lines of railroad through that section the industry will be developed.

The meeting was called to order by President Murray, and the visitors were welcomed by Mayor Phillips, the response being by First Vice-President Tippin. The latter told of the progress which had been made in Missouri in a horticultural way and offered some figures for the information of the people of Eldon and vicinity, who as yet do not appreciate the possibilities of horticulture.

The retiring president, N. F. Murray, after thanking the society for the honors conferred upon him, introduced his successor, D. A. Robnett, who presided thereafter. C. H. Dutcher of Warrenburg read the first paper of the meeting on "Horticultural Education," in which he recommended that the members read the horticultural and agricultural publications, the bulletins of the United States Department of Agriculture, and of the experiment stations; Mr. Dutcher also said the fruit-grower should try to attend all the meetings of the state horticultural society and if possible the younger members of the family should be allowed to attend the short course in horticulture and agriculture at the state exeriment station.

Miss Emma Park of Springfield told of the departure of the horticultural society of that place in establishing a reading course for its members. The plan has worked well, and he recommended it to other local societies.

A feature of the evening programs were the recitations and musical numbers provided by the people of Eldon. They were much enjoyed.

Wednesday morning H. M. Wallace of Seligman read a paper on "South Missouri Strawberry Lands." Mr. Wallace said the strawberry does well in all parts of South Missouri. The sandy soil is especially suitable to the needs of early berries. He recommended much attention to strawberry growing on all the cheap lands of South Missouri.

D. McNallie, of Sarcoxie, followed with a paper on "Growing Selected Plants." Mr. McNallie believes in good plants, grown with careful attention and cultivation, with careful handling at picking time, but he believes there is much humbug in some of the claims for co-called pedigree strawberries. He was particularly severe on some of the advertising claims along this line. Mr. McNallie digs his plants with a plow, shakes off the loose soil, takes plants to celler, where each is cleaned separately, and then ties them in bunches of 52 plants each. Plants for next spring's trade are making a splendid growth.

Prof. John T. Stinson of the Mountain Grove Experiment Station talked on "Strawberry Growing in Southwest Missouri." Prof. Stinson, at the outset, showed the need of a horticultural meeting at Eldon, for he asked how many of the people there grew strawberries, and it was found very few were grown even for home use. He said he believed Southwest Missouri to be the best place in the world to grow strawberries. Believes in shallow cultivation. Varieties should be studied by each grower considering the market he has for his fruit. For Southwest Missouri the late varieties have been more successful of recent years, and they are supplanting the extreme early sorts. He told of the work of growing seedling strawberries at the station, and said he hoped to have a good report to make later. As to varieties, he recommended Aroma, Warfield, Gandy, Sample, Bismarck, Belt, Haverland, Ridgeway, Clyde, and for home use, Clark's Early.

Following this paper were reports on varieties which did the best with them. Colonel Evans, in making his report, said the grower should consider his soil, location and market, and then take nine varieties which best suit his needs; from these a selection should be made. That this advice is best was shown by the diversity of opinion among those from different parts of the state as to best varieties. It was noticed that Warfield was in almost every collection. The Aroma is gaining in favor as a late berry in all parts of the state and is replacing Gandy as a late berry; Parker Earle was also recommended by several who have strong land. The Clyde, which was so popular a few years ago, is falling into disfavor, one serious objection being the scanty foliage of this variety. M. Butterfield recommended Gardner as a fertilizer; J. B. Wild recommended Staple for the same purpose; W. H. Jenkins, the Robinson; C. H. Dutcher the Cumberland. These are some of the interesting points brought out in discussing the varieties.

Mr. Tippin, for the benefit of those people of Eldon, said he would not advise them to plant early berries for market, for they would come in competition with the larger late sorts of the counties south of there. He recommended Warfield, Gandy and Aroma for shipping.

H. S. Wayman of Alvord talked on "Commercial Field and Methods." Would plant early and give fields thorough, clean cultivation. Mulch heavily with straw, and in spring remove a part of it. Would contract with pickers, and have superintendent in charge who will see that only first-class fruit is packed.

Regarding mulching Mr. Schermerhorn, Kinmundy, Ill., said they were not successful in growing cow peas to take the place of straw as a mulch. Mr. Edwards of Versailles said they had grown oats in strawberry patch for mulch.

Prof. Howard, in reply to question as to which varieties resist drouth best, reported concerning the experiments at the station at Columbia. This report will be published in full in the Western Fruit-Grower, together with the gentleman's paper on "Selecting Strawberries for Propagation," in which he differs from Mr. McNallie's conclusions.

Mr. Murray said Crescent did well with him in spite of drouth and Major Holsinger made same report concerning Splendid.

In discussing "Raspberries," A. Taylor of Harrisonville said he would plow land that was to be planted to raspberries in the fall previous to planting; plow eight to twelve inches deep, and then again in the spring. Plant three to four feet apart in rows running north and south. Pinch back the canes to two feet to induce the formation of laterals. After patch has borne cut out all old canes. He has best success with Kansas as a blackcap.

Mr. Murray also recommended Kansas and said he had profitably grown raspberries in apple orchard. Major Holsinger preferred Kansas and Cumberland.

Mr. Gano said many growers leave the tipping of raspberries until too late. He would not use a knife, but pinch back at the required height, taking off as little wood as possible.

Prof. Howard said the Mills is running the Kansas a close race at the experiment station; Mr. Edwards of Versailles said the Nemaha outclasses Kansas with him; Secretary Goodman recommended Colonel Evans' berry, the Evans, and Mr. Jenkins reported the Munger as very promising.

The question was asked as to whether or not it injures the plants to let them tip, and the reply was that it does not; that tipping helps and strengthens the plants.

Mr. Oliver Cole of Springfield sent a paper on "Blackberries," and in the discussion of same the question of whether to cultivate or not cultivate the blackberry patch was discussed. Mr. Murray said he rather favored cultivation for the first two years to get plants established, and then seed the patch to red clover. Mow the clover before picking berries, and keep plants in the row.

Mr. Maxwell of St. Joseph, believed in surface cultivation, saying he had mulched with straw, but this induces the roots to come too near the surface.

J. H. Marion, Fulton, had allowed his patch to be uncultivated, but it did not do well; now he cultivates.

Snyder, Early Harvest and Taylor were varieties most generally recommended. Vaughn's Early does well around Springfield, where it originated. M. Butterfield, Farmington, is growing a seedling of Early Harvest.

"Dewberries" were discussed for there is a growing interest in this fruit. J. B. Wild, Sarcoxie, said the Lucretia is the variety most generally planted; it does well, but transportation will be a problem hard to solve until the acreage is large enough to furnish carlot shipments. It was recmended to give dewberries cultivation after the crop was harvested, any soil which will do for strawberries being suitable for dewberries, although sandy soil is preferred.

Mr. Goodman told of the dewberry plantation of Speakman & Bartels, Neosho. At first excellent care was taken of the patch, and they did not do well. Now the vines are mowed after fruiting, and the patch is not cultivated. (A letter received from Mr. Speakman says the dewberry crop was very fine this year. We can vouch for the appearance and quality of the fruit, much of which was shipped to St. Joseph. The fruit was large and of splendid quality, and having been carefully packed it reached market in good shape.—Ed.)

C. P. Baender, Moberly, Mo., sent a paper on "Currants and Goose-

(Continued on Page Eleven.)

The Lee's Summit Star Nurseries . . .

"A Complete Line of General Nursery Stock, everything hardy and grown out of doors; Varieties specially adapted to the Soil and Climate of the Middle West."

The unusually favorable growing season permits early assurance of good grades for the coming fall and spring. Not any transplanted, or otherwise rough stock in our entire plant—all young and thrifty, grown with the best attention, on the best soil and by expert workmen.

WE CAN RECOMMEND FALL PLANTING of nearly all we grow and some items we will **urge** our patrons to consider for fall planting. With this purpose in view we have prepared two special circulars as follows:

CHERRY TREES A four page circular which permits saying more about this one fruit than is usually permissable in a general catalogue. If you are fond of Cherries this will interest you and if not it will introduce to you some of its best qualities.

DUTCH BULBS for fall planting and flowers in the early spring.

We are prompted to issue this circular from a love of flowers, a demand for this class of cut flowers in their season, and a knowledge of a long felt want among our patrons. We have never grown them before except in a limited way, but will now take them up extensively. The list will include Tulips, Hyacinths, Narcissus, Crocus, etc., which we will import from the best Holland growers and have ready in the early fall.

This circular contains eight pages illustrating and describing these charming flowers, gives complete directions for their culture in the garden and beds and also tells just how to grow them in pots for house plants. These circulars will both be free for the asking and will be mailed (about August 1st) to all who have our blue catalogue. If your name is not on our mailing list as having a blue catalogue it should be and a postal card will bring one promptly.

We strive to please you and to supply your wants in our line and if we do not have just what you want, we will try to convince you that you don't want it, or apologize and add it to our list.

M. BUTTERFIELD & SON, Proprietors, LEE'S SUMMIT, MO.

Apple Barrels Grape Baskets

We are prepared to furnish the foregoing in any quantity. Send list of your wants for prices. Stock of all kinds should be ordered early as possible.

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ST. JOSEPH, MISSOURI.

W. T. LETTS
1809 S. 4th St., St. Joseph, Mo.
Apple Barrels, Boxes and Crates, Farmers' Egg Cases and Fillers.

BOX AND COOPERAGE MANUFACTURER
NEW PHONE, 764. LONG DISTANCE, 1003.

CABBAGE WORMS Effectually killed by dusting with HAMMOND'S SLUG SHOT. Used 22 years. Is SOLD BY SEED DEALERS. For pamphlet on Bugs and Blight address **B. HAMMOND, Fishkill-on-Hudson, N. Y.**

Cow Peas. Cow Peas.

To close out we offer stock while it lasts at reduced prices :: :: ::

Whippoorwill (best variety), single bushel lots, $2.25 per bushel; five-bushel lots, $2.05 per bushel; ten-bushel lots, $1.90 per bushel. Bags free. Red Ripper, Gray Goose, New Era, Black Eye varieties, 5c per bushel more; clay mixed, 5c per bushel less.
Whippoorwill is best variety. Order at once. Stock is limited.

Missouri Valley Seed Co.

ST. JOSEPH, MO.

Maj. Holsinger's Department

Whereas, The Missouri State Horticultural Society, having grown from a local county society to a strong institution, and taken a position with the best associations of its kind in the nation, its influence not only reaching every county in our state, but is recognized throughout our entire country; and

Whereas, In determining when, where, what and how to plant, cultivate, gather and market fruit successfully and profitably, the society has been, and is now, a source of information, the value of which is not underestimated, yet it is believed that the time has come when the offices of the society should be extended along new lines of work, in which the faithful discharge of such duties and responsibilities can only redound to the interest of all concerned. And,

Whereas, In view of the fact that many mistakes are made and many thousands of dollars are lost annually by the planters being misled by being induced to buy and plant new, renamed, misnamed, untried fruits and plants, oftentimes represented to have special merit as to long life and productiveness, which is not founded upon fact.

Therefore, believing that the state society con do much to remedy these wrongs without doing injustice to anyone, and believing that the society should be in harmony with the rulings of the American Pomological Society on all matters on nomenclature, be it

Resolved, That it is the sense of the Missouri State Horticultural Society that it owes to the horticulturalists of the state all the protection and advice consistent with the position it occpies.

Resolved, That in further recognition of what the legislature of the state and the government of the United States are doing for us in maintaining fruit experiment stations for the purpose of testing new fruits, that we recommed to the planter that he purchase no new fruit until it has been tested, and if considered worthy of propagation named, by the pomologist of some state or nation or horticultural society for the originator.

Resolved, That we recommend that the experimental stations at Columbia and Mountain Grove be constituted a bureau of information where, by correspondence, any planter may ascertain as to whether any new fruit or theory of propagation has been tested and found worthy of planting or adopting.

Resolved, That this society do not recommend the planting of any new fruits that have not been properly tested and named by the experiment stations and pomologists, thus avoiding, as far as possible, the confusion and injustice of renaming old and the planting of new sorts that are worthless.

Be it further resolved, That in taking up this work the Missouri State Horticultural Society invites the co-operation of the adjoining states in perfecting this work, whereby all honest horticulturalists will be better protected.

Resolved, further, That the society will appreciate the keeping of standing instructions in the columns of our state fruit journals, when same have been perfected, whereby their readers will know how best to inform themselves along these lines.

The foregoing resolutions were passed at the late meeting of the Missouri State Horticultural Society. From these resolutions we recorded our dissent. The haste with which they were passed precluded a discussion of their merits. In the concluding hours possibly time demanded it. We simply gave an emphatic "No!" The resolutions therefore were not the unanimous verdict. We now offer our objections to the resolutions.

They are well meant, and in part are justified, but we hardly believe they will accomplish the end desired. To make of the experiment stations mere test farms, which will pass upon the advisability of planting new fruits, is all wrong, we believe. It would require too much time which should go to experimental work. Of course the force at the stations could be increased, and the testing of fruits carried on on a large scale, but would this be desirable? For instance, does anyone believe that no fruit should be planted in the state of Missouri except those which do well at Columbia or at Mountain Grove? We have no doubts the tests would be carefully conducted, but different localities make a difference in the behavior of different fruits. If the spirit of these resolutions is carried out, as we understand it, what would be the position of a man who wanted to plant a new fruit when at Columbia the variety succeeded and at Mountain Grove was a failure? Or what the position of one who planted a variety which was recommended by both, and which finally proved to be a rank failure when it was finally planted in the orchard

If the State Horticultural Society maintained test stations all over the state, as is the case with some societies, then the reports of these stations should be given much consideration. But we do not believe that a station at Columbia or Mountain Grove can determine varities which are advisable to plant in Northwest Missouri, or in any section far removed from those points. Even if there were a test station in every county, the reports of varieties should not be relied upon absolutely, for even on a single farm there are soils in which varieties behave differently. Near St. Joseph, for instance, we know of one strawberry grower who succeeds admirably with the old Downing, while every grower has long ago discarded it. What if the man who has the Downing soil conducted the test station? He would bankrupt all the other growers if they followed his advice to plant the Downing.

In fruit growing one can be, and should be, guided by the advice of the experiment stations and the experience of other growers, to a certain extent, but this advice should be along general lines, we believe. When it comes to varieties, the greatest consideration should be given to the experience of the man on the next farm, but at the last extremity new varieties should be tested carefully, and on a small scale, before any extensive planting is made.

We do not believe the resolutions would be carried out, so far as they recommend to not plant any new varieties until after they have been tested at Columbia and Mountain Grove, for really such testing would help a planter in other sections but little. In this respect, we believe the resolutions would not avail anything.

The resolutions as to names of varieties are all right, we believe, except that instead of being named by local or state horticultural societies, the better way would be to have the American Pomological Society pass upon the nomenclature of fruits. If a so-called new variety is the same as an old variety, this society could detect the same and announce it, and its recommendations would likely be generally observed. In naming a new fruit, if it is a new fruit, the originator should have, and does have, the privilege of naming it along lines which the society has adopted. We believe the names which are recognized by the American Pomological Society should be the ones which are recognized by state societies, and with this part of the resolution we are in sympathy.

We believe the resolutions would have been strengthened by omitting the reference to the testing of new varieties. We believe, as stated before, this can best be done, on a small scale at first, by each grower, and must in the end be done by him. Even after a variety has been recommended by the stations, the planting of it on any farm in the state will be in the nature of an experiment—why not begin the work there, by planting a few trees, and save valuable time?

We feel that we should express our opinion in regard to this part of the resolutions, for we voted against them at Eldon, and some persons wondered why we did so. This explains our reason.

The Undeveloped Resources of Missouri—When a boy I found in my old geography the statement that Missouri possessed coal veins sixty feet in thickness. I had lived on the border of Missouri for nearly one half a century and concluded the statement a "myth," else why work veins eighteen inches when there were such deposits.

While in Eldon last month I was attracted by a sign "John P. St. John." I knew the governor well in Kansas, I called and found, instead of the governor, his son, who was in the real estate business. In conversation with him he spoke of the wonderful coal, lead and zinc deposits. His statements bordered on the fabulous.

"I can show you the Stover mine, 72 feet, 8 inches of solid bituminous coal, the best in the state, according to our state geologist," said Mr. St. John.

Like the native Missourian, I was there "to be shown." The Stover mine is twelve miles west of Eldon, Miller County. A party was made up of Secretary W. H. Banes of the Kansas State Horticultural Society, Mr. Smith, a court reporter from Kansas City, and myself, Mr. St. John accompanying us. Our drive was through a rather rough wooded country, very primative; no orchards were seen—here and there an apple tree, with old dilapidated peach trees along fence rows. Where farms were open, vegetables, oats and grain attested a good and fertile soil. Fruit growing would undoubtedly succeed were a proper effort made. On reaching the Stover mine we were joined by Mr. Murray and other gentlemen, who, like ourselves, had been attending the state meeting.

Wonder of wonders! Here was the mine we had read of in childhood, not sixty feet but 72 feet, 8 inches of coal deposit. No guesswork—a shaft had penetrated it to its depth—a shaft 800 feet which we entered ti its limit. Everywhere coal, the pure article and no better to be found anywhere. This coal is on the surface, it crops out all around; to get this coal requires no stopping. It is everywhere and inexhaustible. I attempted to figure the product from a single acre; I confess the poverty of my figures to approximate it. Suffice it to say that had I one acre at Kansas City, I think I would be able to keep the wolf from the door for a time at least.

Leaving the Stover mine we drive eight miles further west to Versailles, in Morgan County, to see the cannel coal mines of Hubbard & Moore, Versailles. This mine is of the best cannel coal, 52 inches in thickness; it is so rich in bituminous that it will burn in the open air from a match. This mine is five miles northwest of the city of Versailles.

Coal was recently developed in the city while drilling for water, 48 feet in thickness. There are hundreds of mines developed where the coal deposits range from 30 to 50 feet. We are safe in saying that the supply of coal is inexhaustible.

How to get it to market is the question. Only a spur of the Missouri Pacific as yet penetrates this section. The Rock Island and the Frisco are pushing their roads in this direction.

FARM ENGINES

There are so many purposes for which Gasoline Engines are needed on every farm it should be unnecessary to enumerate them.

A Gasoline Engine is the cheapest and most satisfactory power to use to

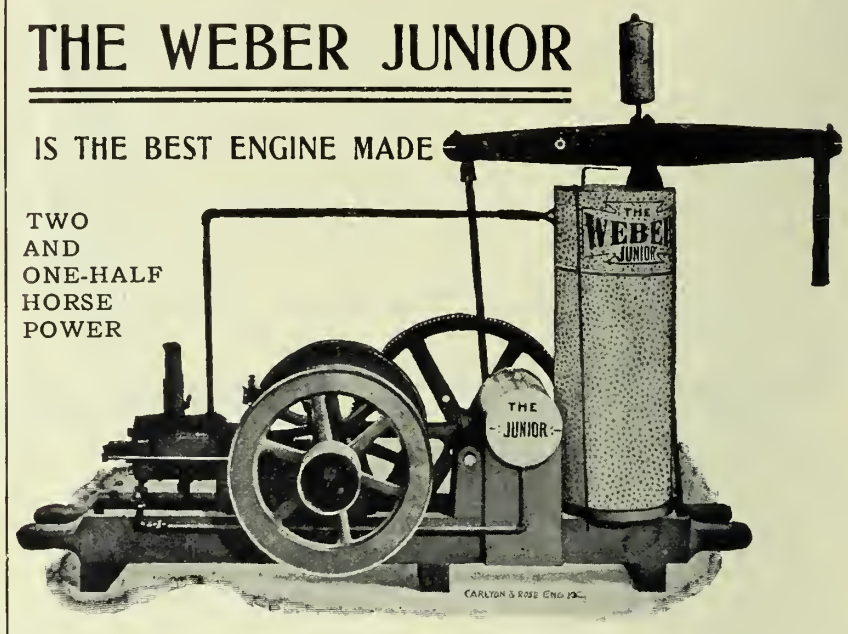
PUMP WATER, SAW WOOD, GRIND FEED
RUN CHURNS AND CREAM SEPARATORS ETC.

On thousands of farms these engines give satisfaction, and testimonials will be sent on request. Get a Good Engine when buying—one which is guaranteed by a reputable firm.

THE WEBER JUNIOR

IS THE BEST ENGINE MADE

TWO AND ONE-HALF HORSE POWER



This cut shows this splendid engine. It is 2½ horse power, and is shipped from the factory ready to run, so that any farmer can set it up and operate it. It will pump your water, grind your feed, run wood saw—in fact, it is just the power which every farmer needs. The walking beam is to use when pumping, and is detachable when desired. Hundreds of farmers use the Weber Junior to pump water for their irrigation plants, and we want to hear from every reader of the Western Fruit-Grower who is interested. Your fruit needs water every year, especially at fruiting time. Don't lose a good crop from lack of water. Major Holsinger put in an expensive steam engine, requiring the services of an expert engineer, last year, and yet his costly plant paid for itself in a single season, watering berries—he will put in a gasoline engine now, and make money.

Catalogues and full particulars mailed free. Address

Weber Gas and Gasoline Engine Co.

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FOR FRUIT TREE

Also Pure Bone Fertilizers, "Anchor Brand." Pend for our free circulars.

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THE ALABAMA PEACH

IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD, were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

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When they are in operation we may see this section, now desolate for want of transportation, blossom as the rose. Good lands that will grow 50 bushels of corn and as many bushels of oats, with as good fruit possibilities as any in the Ozarks, can be purchased here for $15 to $25 per acre. Aye! and under the surface there lies a deposit or wealth that Croesus "wot not of."

We found in his office at Versailles, our old friend, Governor John P. St. John. He showed us the minerals. He dilated on the possibilities of Morgan County like a Missourian. Here were the many mines; here a sample of the Stover coal, 73 feet thick; "the best in the world." Here the Holder, 52 feet, striking a match burned it; here the Hubbard and Moore; 52 feet; Martin, 40 feet; Pennsylvania, 30 feet; Hudson, 50 feet." We grow dizzy as he proceeds. Now he shows us the lead and zinc. Now it is fine clay—"the finest in the world."

The Bailey Bros., late of Topeka, now take us in hand; driving us to their recent purchases south of the city two miles. Mr. Barnes is interested with them. He kindly drives us to the Edwards orchard, the best effort at orcharding we have seen in this section. This orchard is in fair condition; trees were moderately loaded with fruit. It showed what the soil will do. We had met Mr. Edwards at the Eldon meeting, little thinking to be able to visit his farm. This orchard comprised I should think 1,000 apple tree of 7 or 8 years growth. I found the codling moth at work; the round head borer, too was getting in its work. Mr. Bailey took us to another plantation that was a failure by reason of "high heading;" these trees headed at 5 feet, were badly injured by "sun scald;" some were badly cracked by reason of severe winter. More than half these trees were in diseased condition. The land was all right, the treatment all wrong. How often this occurs and the individual concludes that the country is not suited to fruit-growing, when the fault is his overdoing it.

Mr. Bailey now drove us to see the Hubbard mines. We enjoyed the kindness, as well as the hospitality, of the Messrs. Bailey, and feel that we were richly repaid our visit to Versailles. This is an exceedingly high altitude, the water on the south side of the court house flows to the Osage river, on the north side it finds its way to the Missouri. Versailles has a splendid class of people, is surronnded by a magnificent county, fertile soil. We predict for it a bright future.

In moralizing we were led to exclaim "Missouri! Oh, little known! Thou art an empire' yet undeveloped, the time' is near when thou will be second to no state in this greatest of Empires.'

Our next stop was at Fortuna, where recently one of the richest mines of lead and ore was found. We visited the mines and were surprised : wonderful richness of the mineral. Lead of 90 per cent purity was brought up in every lift which occupied not over two minutes. Twenty acres of land that could possibly have been purchased three years ago for a song sold for $120,000. One nugget of almost pure lead I was told was unearthed near Versailles that weighed 22 tons. I was led to exclaim "where are we at."

FRANK HOLSINGER.

The M. V. Meeting.

On Saturday, June 21, the Missouri Valley Horticultural Society held its meeting with the Gashland Strawberry Society. Gashland is about fourteen miles north of Kansas City and is becoming well known as a shipping point for first class strawberries.

The day was a delightful one, although a little too cool for an outdoor picnic. However, a good delegation came up from Kansas City and Senator Taylor and family and Mr. Thompson and wife from Edwardsville, Kan.; Mr. Gano and Mr. Lowmiller, with their families, drove down from Parkville, and Colonel Evans and wife from Harlem, so that a good crowd was in attendance. The dinner was up to the standard in every way, and a feature was a barbecued mutton, which had been prepared by Joseph Chedester of the Gashland Society.

After dinner the meeting was called to order, and Colonel Evans presided. George Holsinger read a paper on "Last Word on the Strawberry,' which is presented in this issue.

Discussing the strawberry crop, Mr. Sparks, secretary of the Gashland Society, told of their crop. This society has twenty-seven members, and their crop of berries this season was good. Thirteen carloads of berries were shipped, the gross sales amounting to over $13,000, besides about $5,000 worth of fruit which was sold out of the association. The members of the association netted about $10,000 on their crop, and were well satisfied with returns. The fruit of the association was all sold on track, by the car. Buyers were present from Lincoln, Omaha, Des Moines and Minneapolis, and when a car was loaded each buyer submitted a sealed bid for the fruit. The plan worked satisfactorily to both buyers and sellers. Gashland growers will always sell on track when possible.

Mr. Sparks said one thing needed is a larger acreage. It has been demonstrated that strawberries raised at Gashland are the equal of those raised anywhere, and now more berries are needed to attract more buyers. The acreage should be increased by the addition of more growers, each with a small acreage, rather than by the growers who are now there increasing their planting. The best varieties this season were Crescent, Windsor Chief and Aroma. The latter is gaining in favor as a late berry.

Colonel Evans made the statement that the Crescent had made more money for the berry growers of the Middle West than any other berry ever introduced. Major Holsinger agreed with Colonel Evans in this, although some of the others present claimed this was due to the fact that Crescent had been planted longer, but that some of the newer sorts would replace it.

Marshall Chandler, Argentine, Kan., reported a poor crop of strawberries, saying he believed the high temperature at blooming time had prevented proper fertilization.

Mr. Chedester said he fertilized Crescent with Charles Downing, and wanted the views of the members as to what proportion of the plantation should be of the perfect-blooming variety.

George Holsinger said he believed a very small proportion would do. As a rule, he said, they planted a perfect blooming sort on the outside of the patch, and then planted the imperfect sorts between. Planted this way, they had secured good crops from one row of fertilizer to thirteen rows of pistillate varieties.

Mr. Taylor warned the growers against planting too many Crescent. In a dry season it will be all right, although somewhat undersized, but will not carry well. Mr. Taylor commended the work of the Gashland association, and said the grower should stand by it. Get all the growers in the organization, and handle all the fruit raised. Then success is sure. "Don't ever consign a single crate of berries; sell on track. He who consigns fruit under such circumstances, is his own enemy, your enemy, and the enemy of the entire fruit business. The strawberry business here ought to be encouraged. If someone were to offer to establish a large factory here if the people would subscribe a $20,000 bonus, the chances are you would fall over each other to subscribe this sum. And yet I say no factory will equal the strawberry business here if you continue along the line you are now working. The raspberry needs to be developed with the strawberry; you should have five times as many strawberries as you have, and then as many raspberries as strawberries, and also as many blackberries. Have something for the buyers during the entire berry season."

Mr. Sparks said Crescent and Bubach do not carry well for long shipment. Windsor Chief carries very well; growers have not tried the Gandy.

Calling for reports as to prospects for apples, Mr. Gano said Missouri would not have over one-third crop the state over. Mr. Thompson said this estimate was all right for Edwardsville, Kan. Jonathan trees which bore last year have little fruit this season.

Reporting concerning stone fruits, Colonel Evans said peach trees have recovered from their last year's heavy crop and should be in condition next season to bear fruit. Cherries were good in some places, but generally shy; plums are very short crop.

Mr. Gano warned the growers to examine their peach trees at once for borers. He has 3,000 trees, from which he has taken from five to twelve borers each. These trees were wrapped last season to protect against borers and the wrappers were removed late. This spring he thought he was safe, after that precaution, but the borers were numerous, and he has killed more in the last two months than in his thirty years' experience previously. He would examine all peach trees at once, killing all borers, and then mound the trees with earth. This will cause the female to deposit her eggs high on the tree. In August scrape the mound away, and the larvae will then be in plain view and can be easily destroyed.

The crop of raspberries was reported extra fine. Kansas was pronounced best berry now, but the Cumberland will take its place. The latter is in every way a desirable raspberry. Blackberries will not be over one-fourth crop.

Colonel Evans reported a twig borer at work in his raspberries, which is a new pest to him. Specimens were sent to Miss Murtfelt, and she said she had never seen it before. It works in the new wood of the raspberry canes. The leaves wither and dry up, the borer working down in the pith for several inches.

Vineyards were reported in poor shape, although one grower from across the Kaw River in Wyandotte County, Kan., reported prospects good. Vegetables were reported as being the finest for years, and Senator Taylor predicted that by fall vegetables would be so plentiful that everyone who has the salt can secure the vegetables to accompany it.

The exhibit of fruits was limited to cherries and raspberries. Flowers of many kinds were shown, among them a bunch of dahlias from Mrs. M. E. Chandler, which were unusually early for this flower.

Colonel Evans had on exhibition a crate of raspberry bearing his name, and Major Holsinger had boxes of Gregg, Kansas and Cumberland raspberries, and boxes of Montmorency and Wragg cherries, including some branches of the latter on which the fruit hung in ropes.

The committe on fruits said the Cumberland was the best-looking raspberry, and the Evans the best flavored. Wragg is the best-looking cherry, but Montmorency best quality. George Holsinger added that the latter brought the most money, too.

At the conclusion of the program the fruit was auctioned off by Mr. Taylor, the proceeds going to the hall which has been erected by the Gashland Strawberry Association. Over $5 was realized for this purpose, and the meeting adjourned, after a most pleasant day.

During the day a party of the visitors visited the farm of Joseph Chedester, which is a well-kept place in every way. Mr. Chedester is a hard worker, and deserves much praise for the success of the meeting at Gashland. Mr. Chedester is the pioneer in the strawberry business at this point. This year he had three acres, from which he netted $946, after all expenses were paid. He had one-fourth acre of Crescents which yielded 300 crates. Mr. Chedester says he will take the Crescent with a good fertilizer and will raise more berries on an acre than anybody can with any other variety. His planting was in good shape, except that there was much rust from the Downing, which Mr. Chedester says rusts badly with him.

Gashland berries are making a name for themselves, and Colonel Evans says it is in the best strawberry section he has ever seen. A larger acrage will be planted next season, and great things are expected from the growers there. Their association is now in good condition, and if the growers will support the association they should make the business very profitable. Dan Carpenter is responsibe for working up an interest in the berry business at this point, and was much interested in the success of the meeting of the M. V. Society last month.

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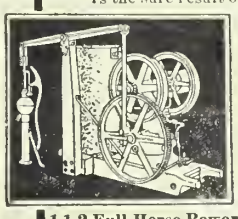

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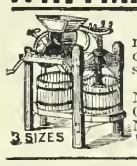

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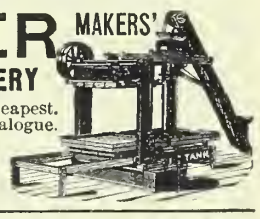

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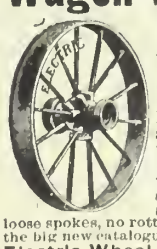


Prospects for Fruit

Since our last fruit crop report there have been some changes in conditions. The raspberry crop in the Middle West surprised everybody by its yield, and prices held up remarkably well. In sections where there are peaches they are continuing to improve. Texas peaches are now being marketed in great quantities.

The apple situation varies. Throughout the Eastern states the crop is said to have been damaged somewhat by excessive rainstorms. In the Middle West fruit has continued to drop from those trees which bore heavily last year, but on other trees the crop still promises well. It is noticeable that the best reports come from northern Missouri, the large crops in Southern Missouri and Arkansas having evidently prevented trees from holding their fruit. All reports from this section aer to the effect that fruit is remarkably fine and growing nicely. In Northwest Misouri and adjoining sections of Kansas, Iowa and Nebraska the largest crop since 1897 is expected. The principal injury of the season was that from canker worms.

In New England the crop is said to be large, and New York's crop will be heavier than last year. In Western New York estimates collected by the horticultural society of that section vary from one-third to full crop. Illinois reports a good crop in those sections which did not have full crop last year.

Altogether, it is believed the apple crop is better than that of a year ago. Certainly it is in most sections, excepting possibly Southern Missouri and Northern Arkansas and Southern Illinois. Prices promise to be well maintained, however, on account of the shortage in other fruits for canning purposes.

Our summary of reports follows:

Bentonville, Ark.—Apples are dropping, some from worms, some from wind; crop promises 60 per cent of full crop, with 90 per cent of the fruit marketable. Best varieties are all commercial sorts except Ben Davis. With an increase of bearing trees, there are indications of a crop equal to that of last year, or 30,000 barrels to ship.—I. B. L.

Springdale, Ark.—Apples promise one-fourth crop; codling moth damaged fruit some. Peaches are full crop. This section will have 250 acres of canteloupes to market; they look fine, and will be on the market about the 20th.—W. B. B.

Santa Clara, Cal.—Three-fourths crop of apples promised, with 80 to 90 per cent of it marketable. Newtowns and Pearmain promise best. Bellflowers dropping some—W. H. H.

Lamar, Colo.—We have promise of full crops of apples, plums and peaches in the Arkansas Valley.—J. O. S.

Rocky Ford, Colo.—Apples promise well here. Fruit in splendid condition.

Blue Lakes, Idaho—Have promise of 100 per cent of crop, 80 per cent marketable. Jonathan, Rome Beauty and Ben Davis promise best.—I. B. P.

Neoga, Ill.—Prospects indicate full crop of apples of extra quality. Apples are finer and larger than usual at this time of season.—H. A. A.

Hamilton, Ill.—Apples hang on trees better than I ever saw before; 75 per cent of crop indicated, 50 per cent marketable. Ben Davis promise best. Barring windstorms, we have best kind of show for apples.—H. D. B.

Nauvoo, Ill.—Trees have all the apples they can well carry—80 per cent of crop. Where sprayed, trees will have 75 to 90 per cent marketable fruit, and much less where not sprayed. Ben Davis, Gano, Fameuse, Jonathan and Rome Beauty promise best. Plums are all right where sprayed; where not, are dropping badly. No rot of grapes where sprayed; unsprayed vineyards rotting badly.—E. J. B. (Friend Baxter believes in spraying and makes it pay, too—.Ed.)

Griggsville, Ill.—A few orchards are not healthy, but generally we have the best prospect we have had in years—100 per cent crop, with 80 to 90 per cent marketable.—C. G. W.

Jerseyville, Ill.—Recent heavy rains, with accompanying wind, have reduced apple crop here to some extent.—W. E. C.

Gilead, Ill.—Apples, as a rule, promise 75 per cent of crop. Fruit is the finest I ever saw; it cannot be beat, and apple buyers will do well to visit Calhoun County.—L. C.

Quincy, Ill.—Apples are dropping some from excessive rain and wind; 75 per cent of crop is indicated, with 80 per cent of fruit marketable. Apples are of unusually fine quality, with Ben Davis, Willow and Winesaps promising best.—C. H. W.

Batchtown, Ill.—Not many apples, little spraying done; injury from canker worms and codling moth. Apples promise 10 per cent of crop, with half of them marketable.—J. R. D.

Cobden, Ill.—Ben Davis trees are full, others a failure or short crop. General prospects from 50 to 90 per cent of crop, owing to care of orchards. Ground in good condition, and fruit is growing fast.—A. A. H.

Savoy, Ill.—Some curculio-stung fruit is dropping, and prospects now indicate about 75 per cent, with 80 per cent of the fruit in sprayed orchards marketable. Severe wind storm since last report injured trees and fruit; nearly all Duchess apples blown off. Willow Twig trees suffered most, and there is considerable blight among them.—R. L. D.

Vincennes, Ind.—Apples promise one-third to one-half full crop; 80 per cent of fruit should be marketable. Fruit is growing rapidly.—H. M. S.

Lafayette, Ind.—Apples promise 50 per cent of crop, with 75 per cent of the fruit marketable. Ben Davis, Rome Beauty, Winesap, Grimes and Smith Cider are in best condition.—J. T.

Shenandoah, Iowa.—About half crop of apples; 75 per cent of fruit marketable. Usual damage from insects.—O. H. B.

Glenwood, Iowa.—Apples promise half crop, with 35 per cent of full crop of marketable fruit. At this time fruit promises to be more free from insects and scab than any crop for years. Ben Davis, Winesap and Janet promise best.—J. P. J.

Atchison, Kan.—Seventy-five per cent crop of apples promised, with 75 per cent of the fruit marketable. Not as much damage from insects and diseases as usual. Winesap, Ben Davis and Jonathan promise best.—O. H. P.

Arlington, Kan.—Apples and all fruits except peaches are fine in this locality. Apples are especially nice and free from worms.—B. P. H.

Troy, Kan.—Apples promise 75 per cent of crop; too early to say what part of crop will be marketable. While young trees have not held their fruit well, we will likely have more fruit in this county than ever before.—A. P.

Wichita, Kan.—Not as many apples down this way as last year, but will be of better quality. Crop promises two-thirds of full crop, with half the fruit marketable.—W. F. S.

Parker, Kan.—Apples are not dropping; we have prospects of 50 per cent of full crop, and 80 per cent of the fruit will be marketable. Missouri Pippin, Winesap, Ben Davis, Gano, etc., promise best. Some trees are not as full as last year, but fruit is as large now as it was on Sept. 1 last year, and we will have several thousand barrels to dispose of.—B.F.C.

Watervliet, Mich.—Damp weather caused a great deal of fruit to drop. Have prospect of 40 per cent of crop, with three-fourths of the fruit marketable. Not much damage from insects. Baldwin, Greening, etc., promise best. Fear the damp weather will develop scab.—R. H. S.

Kansas City, Mo.—Apple trees which were overloaded last year have dropped fruit to some extent. Crop promises one-third of full crop, with 80 per cent of the fruit marketable. Ben Davis, Winesap and Black Twig promise best.—L. A. G.

Beaman, Mo.—We have eighty acres of apples. Ben Davis, Rome Beauty, Grimes Golden and Missouri Pippin promise a full crop of fine fruit, free from defects.—R. K. T. & Son.

Glasgow, Mo.—Some orchards have dropped fruit badly; 50 to 60 per cent of crop now indicated. Canker worms did much damage. Ben Davis and Winesap are best.—H. S.

Carrollton, Mo.—Apple crop promises to be better than for five years. We estimate full crop. Grape vines badly killed out.—J. S. A.

Columbia, Mo.—Apples have dropped badly. Promise of 25 per cent of crop, with two-thirds of the fruit marketable. Ben Davis are in best condition.—D. A. R.

Oregon, Mo.—Apples promise half a full crop, with 80 per cent of the fruit marketable. Ben Davis and Winesap promise best. Apples are large, trees vigorous, with rains holding insects in check.—N. F. M.

Adams Basin, N. Y.—Fruit is dropping some, but no more than ought to come off. We expect about half of full crop of fruit, nearly all of it marketable. Baldwins are shy. Greenings, Russets and Spys promising best yield.—C. O. B.

Vail Mills, N. Y.—Apples should yield 70 per cent of full crop. Some trees injured by canker worm, being last to be sprayed.—J. P. F.

Lagrangeville, N. Y.—Apples will be not over half a crop, with 80 per cent of the fruit marketable. Ben Davis, Greenings and Pippins promise most fruit.—T. C.

Fredonia, N. Y.—Apples promise 40 to 50 per cent of crop. Grapes 100 per cent.—T. S. H. Co. (Reports from the grape section of New York generally indicate a full crop, although in some sections Concords have been injured. In the West the grape crop will not be over 50 per cent full crop.—Ed.)

Lockport, N. Y.—Cherries are a good crop, selling at 50 cents for 8-pound basket. Half a crop of apples promised, 85 per cent of the fruit marketable. Baldwins and Kings promise best; Greenings showing signs of injury by fungous diseases. Pears very fine, with half a crop. Plums three-fourths of crop, with prunes, which embrace 75 per cent of all plums grown here, full crop.—D. T. McC.

Tecumseh, Neb.—Apples promise fair to good crop; better than last year, but still not a full crop.—W. G. S.

DuBois, Neb.—Apples promise 75 per cent of crop, with three-fourths of the fruit marketable. Ben Davis, Jonathan and Winesap promise best. Pears promise heavy crop.—C. O. B.

Stryker, Ohio.—Apples not in good condition. Some varieties promise 40 per cent of crop, others with no fruit. Pears 75 per cent, grapes full where vines were not injured by last season's drouth.—A. H. Q.

Bradrick, Ohio.—Apples promise full crop on sprayed trees, one-third crop on unsprayed trees. Nearly all will be marketable on former, very little where not sprayed. Damage from insects and fungi confined to trees not sprayed. Very few Rome Beauties on such trees are worth picking, while our fruit on sprayed trees is as fine as we ever saw, and we expect 3,000 barrels of first-class fruit.—U. T. C. (This is almost a sermon on spraying, for Mr. Cox sprays thoroughly every year.—Ed.)

Port Clinton, Ohio—Peaches, our main fruit crop, will average fair. Plums and apples are short crops, no Baldwins to speak of. Cherries and pears full crop. Berries all light crops. Thousands of peach trees were killed on Catawba Island by spraying with crude petroleum, and lime, salt and sulphur mixture will be used hereafter.—J. S. J.

Northeast, Pa.—Not enough apples here to cut any figure in supply of commercial fruit.—A. I. L.

Syracuse, Utah.—Prospects for apples fair; will have about 5,000 boxes of first-class apples and a car of Bartlett pears. Several cars of pears can be loaded here, a mile from station.—W. H. M.

Burlington, Vt.—Apples promise 60 per cent of crop; can't say what quality will be. Weather wet and very favorable to fungi.—F. A. W.

Winchester, Va.—Apples promise not more than 15 per cent of crop. Pears 20 per cent, peaches 40 per cent. Locusts have injured young trees to some extent.—W. S. H.

Walla Walla, Wash.—Apples promise 90 to 100 per cent of crop. Crop prospects were never better at this season; all varieties look well.—W. S. O.

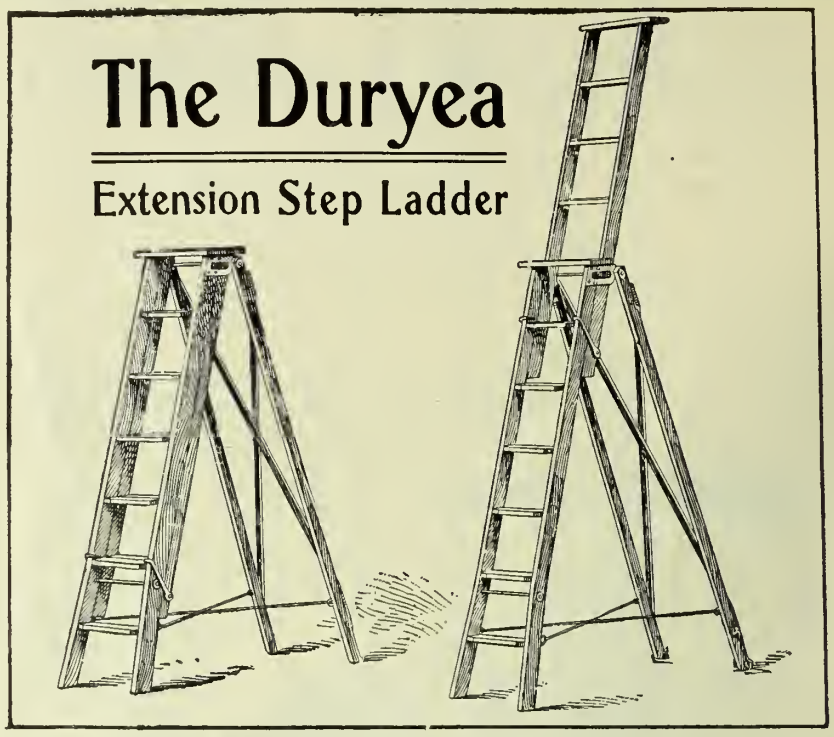
Richland Center, Wis.—Apple outlook fair to good—probably 60 per cent of crop. Fruit growing nicely. Blight in some varieties.—W. I. H.

He eats heartily in the hottest weather who uses Prickly Ash Bitters. It keeps his stomach, liver and bowels in perfect order.

The quality of raspberries was perhaps never better in Northern Missouri than during the present season. The fruit was large, firm and of splendid flavor.

The Duryea

Extension Step Ladder



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Duryea Ladder Co. Morning Sun, Iowa

Notes of the Month

H. J. Barber, Atchison, Kan., says prospects are good for three-quarters of apple crop in his vicinity this season, with quality very fine. Atchison County has many good orchards.

The Western Fruit-Grower knows a good opening for a good gardener and fruit-grower to take charge of a ten-acre place in Missouri. References as to ability will be required. We will furnish the name of the gentleman desiring such a person to those who are interested.

S. R. Young & Co., commission men of Springfield, Mo., and Kansas City, Mo., who are well known to most Missouri fruit-growers, have suspended business on account of financial difficulties. It is believed the trouble is but temporary, and Mr. Young's many friends hope this will be the case.

Texas tomato crop this season was unusually fine, and netted the growers good money. The first twenty cars shipped from Jacksonville contained 18,280 crates, netting the growers $19,956.26, or an average of $1.09¼ per crate. This shows the tomatoes brought nearly $1,000 per car. Careful packing of only first-class fruit is given as the cause of the good prices received.

Foster Udell, Brockport, N. Y., in sending his subscription to the Western Fruit-Grower, says his fifty acres of orchard, mostly Baldwins, will yield, he believes, 8,000 barrels of No. 1 fruit this year. Mr. Udell says his fruit is growing nicely and he has never seen it look so well at this season of the year. From other reports from New York we gain the fact that the apple crop will likely be heavy—perhaps more than three-fourths of a full crop.

Secretary W. H. Barnes of the Kansas State Horticultural Society is determined that there shall be more local societies in the Sunflower state, and with a view of helping along the work he has just prepared a pamphlet treating of plans for organizing county horticultural societies, village improvement societies, etc. This pamphlet, we understand, is free for those who send for it and it will certainly be helpful to those who wish to form organizations along the line suggested.

G. A. Blair, Mulvane, Kan., wants a buyer for his peach crop, preferring to sell on the trees. He says he will have from 2,000 to 2,500 bushels of peaches, mostly Elbertas. They promise to be very fine; are well set all over the tree, yet are not crowded; trees were headed back severely, and practically the entire crop can be gathered from the ground. He also will have about 500 bushels of Japan plums—Burbank, Satsuma, Abundance, etc., for which he wants a buyer. Last year Mr. Blair had 3,000 bushels of apples, but will not have so many this year.

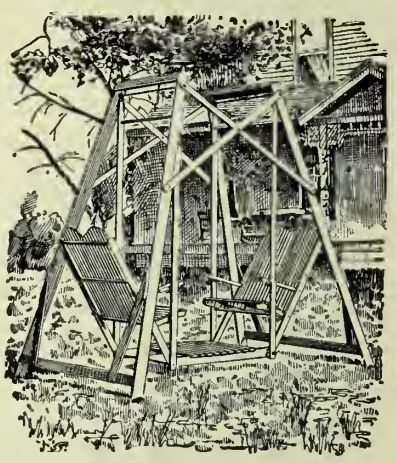
Prof. E. S. Goff, professor of horticulture of the University of Wisconsin, died at Madison, Wis., on June 6, form the effects of a surgical operation. Professor Goff was well known and contributed much to the literature concerning hardy Northern fruits.

GOOD CIDER MILLS.

A firm which is well known throughout the West in many lines of agriculture is the Whitman Agricultural Works, St. Louis, Mo. This is an old and reliable firm, and their wares are first-class in every respect. In this issue this firm advertises cider mills, of which they make several patterns. The large crop of apples this year will make it necessary to work many of the lower grade apples up into cider, and one good mill should be on the farm of everyone of our readers. See the ad elsewhere in this number and write Whitman Agricultural Works, St. Louis, Mo., for particulars. When you write mention Western Fruit-Grower.

NO MORE CABBAGE WORMS

And no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both, and it is cheap. Each recipe 50c. Address JOHN KLENKE, 412 West Homestead, Pa



St. Joseph Lawn Swing

4 Passenger $5.50
2 Passenger 5.00

CHESMORE - EASTLAKE MERCANTILE COMPANY

St. Joseph, Mo.

Seeds for late planting, Cow Peas, Rape, Turnip Seed, Millet, Kaffir Corn, etc. Write for catalogue and price lists.

BUDDERS WANTED

Practical budders who will accept employment in commercial nursery establishment. Rapid working men, of experience, are wanted. Write to Nurseryman, in care of Western Fruit-Grower, St. Joseph, Mo.

WANTED

Practical Budder

Write at once, stating experience, to

THE PENNOCK NURSERY CO.

FORT COLLINS, COLO.

Budders Wanted

by the Kansas City Nurseries. Blair & Kaufman Props., 233 Rialto Bldg, Kansas City, Mo.

JAPAN WALNUT TREES

Hardy as an oak. Postpaid 35c, 4 for $1. Strawberries, Red and Black Raspberries, Blackberries. Send for prices on large lots. A. Y. CATHCART, Bristol, Indiana.

For several years the advertisements of the Mead Cycle Company have appeared in the columns of the Western Fruit-Grower. Every year the business of this company has grown until now it exceeds 50,000 bicycles sold through mail orders all over the world each year. The Mead Cycle Company keeps its factories running all winter storing up wheels of the finest quality, and is always ready in the spring and summer to fill orders promptly at prices which are lower than any manufacturer selling on the old plan, through local dealers, can deliver a wheel of even inferior quality. The Mead Cycle Company can ship any wheel at any price the same day the order is received. Readers of this paper can be assured of prompt and honorable treatment. When writing for catalogues and prices mention the Western Fruit-Grower and address Mead Cycle Company, Dept 429, Chicago.

Last Word Concerning the Strawberry.

At the June meeting of the Missouri Valley Hortiultural Society George Holsinger read a paper on the above subject. After telling of the antiquity of the strawberry and paying tribute to its quality, he said:

The culture of the strawberry is a mooted question. People refuse to agree as to the location of patches, as to whether they should be on thin upland or rich bottom land; they decline to be uniform in their notions as to the matted rows, hedge rows, hill system, etc. Even as to the planting, one will insist that it is absolutely necessary to have the soil loose, another says it must be packed on the surfae, while another declares that both these methods will result in failure, and claims the only true way is to plant in soil well firmed, with a dibble or spade. We will simply give our method of planting, and you can take our opinion for what it is worth.

Our custom is to plant on heavy bottom land. There are two reasons for this. In the first place, we have that kind of land to plant, and secondly it is nearer water and in dry seasons we are prepared to irrigate. The strawberry during the ripening period requires a good deal of moisture, and if the season is at all dry the berries on the upland will be the first to suffer, and even if one has no water to apply, the plants on the bottom land will be the last to need it. The adherents to upland planting condemn the bottom land and predict an excessive growth of foliage and damage by late frosts. In our experience, however, we have never suffered from rank growth of plants, and the season when strawberries may be injured by frost is so short as to render the bottom plants comparatively safe, for it is only during the flowering season that strawberries are susceptible to frost injury.

The method of planting is simple, the only advance step being to keep the ground free from trash before planting. We have never tried manuring, as some advise, and I have serious doubts as to the advisability of such a procedure on bottom soils. A planting gang should consist of about eight men and one team—one man and team to plow and float the ground, one man to lay out the rows with a marker, two to drop plants, and four to get the plants into the ground before they have a chance to dry out.

Ordinarily we plant in rows four feet apart and set the plants about eighteen inches in the row. It is our desire always to set plants in soil so soft and loose that holes may be dug without trowel or dibble. Care should be taken to have the crowns even with the top of the ground; if planted too deep the first cultivation will cover and kill the plants, and if planted too shallow they will likely be jerked out with the weeder. As soon as the plants are in the ground the man with the weeder is sent over the patch to loosen the surface soil which has become packed in planting. This first cultivation with the weeder also levels the surface and fills all the holes made in planting

The cultivation of the strawberry is a tedious, though not necessarily laborious job. That is, it is not laborious if done as it should be before weeds befoul the patch, and to prevent this a great many plowings and hoeings are necessary. I have known strawberry patches that received twelve hoeings and twenty plowings in a single season. Success requires the greatest care, and in strawberry culture it is true that "eternal vigilance is the price of safety." From the time the plants are in the ground until the first buttons begin to dip, the principal work is to keep the ground loose and free from weeds.

When the first buttons are formed they should be carefully removed and transplanted to vacant spots in which the first planting may have failed. It is our aim to have solid rows about twelve inches in width. Parker Earle and like varieties will easily do this, and those of the Warfield type will run solid if allowed to do so. If the season should be favorable to heavy growth the tendency will be to make too many plants and mat the whole row. To avoid this we plow with eight inch plow and rolling cutter, clipping the rows to the desired width. The successful rejuvenation of old patches requires nearly as much work as it takes to start a new patch. With plants of the Warfield type—that is, those which send out many runners—we cut the rows down with rolling cutter to about four inches in width, and then remove the surplus plants in the rows with the hoe, leaving the plants about eight inches apart. Parker Earle sends out few runners, consequently no new plants are formed and our custom is to clean out the weeds and trash with the hoe and leave all plants stand for the following year.

Mulching should be done in December to prevent injury from freezing and thawing. We usually use forty acres of wheat straw to ten acres of strawberries. A heavy mulch will slightly retard the ripening season, which generally is not a disadvantage. However, if mulched heavily the straw must be raked from the rows while the plants are dormant, for deeply buried plants do not bloom freely.

This year our berries were badly injured by crickets, the insects eating the seeds just as the berries began to color. From the result of this year's crop we still believe the Parker Earle is the best berry for bottom land; Warfield we place second on the list. Clyde, which was unfavorable in other seasons, was unexcelled this year; Splendid did well, although our experience with it is limited; Gandy does well for others but failed for us.

One thing we gather from this season's experience is that the man who has more than five varieties of strawberries has too many, and the one who has less than four will have to stay away from the market at least a part of the time.

200 AM. ARBOR VITAE FOUR YEARS OLD $2.00

At the above prices we will ship the above 200 lot prepaid to any office in the U. S. Order as many lots as you want, but not less than 1 lot of 200. Each customer will be sent free a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreen as are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. The American Arbor Vitae is undeniably the best all-round Evergreen for hedges, windbreaks, and screens. May be sheared to suit, tall or low, broad or narrow. ORDER NOW FOR FALL. Evergreen and Shade trees by the carload.

EVERGREEN NURSERY CO.
Sturgeon Bay, Wisconsin.

To the Public

The best and safest life insurance policy you can take out is a Sudduth Pear orchard. No assessment to pay each month, your policy is paid back to you many times during your lifetime and again after your death to your family.

The propagators, Augustine & Co., Normal, Illinois, have issued a booklet on this marvel of horticulture which they will send free for the asking. They also wish to state that their catalogue of general nursery stock for 1902 is just from the printers and is free to all who desire it.

We give excellent inducements to agents to handle the Pear. Write us for particulars.

Augustine & Co., - Normal, Ill.

BUY A GOOD SPRAY PUMP

— don't experiment — costs money. We have done the experimenting — used the common spray pumps in our own orchards, noted their defects then invented the ECLIPSE. You get the benefit of our experience free. Send at once for catalogue.

Morrill & Morley, Benton Harbor, Mich.

TREES

FOR FALL OF 1902 AND SPRING OF 1903

We offer a large and choice line of General Nursery Stock.

Special attention is called to the following:

APPLE, CHERRY, Peach, Keiffer and Dwart Pear, DOWNING GOOSEBERRY, Catalpa, Box Elder, Silver and Cut-leaved Maple, Mountain Ash, Carolina Poplar, Tulip Tree, Black Walnut Seedlings, Pecans, Clematis Paniculata, Wistaria, Norway Spruce, Hydrangea P. G., Berberry, Privet, Hybrid Perpetual and Climbing Moss Roses, Apple and Pear Seedlings and Root Grafts. For prices address

F. S. PHOENIX, Bloomington, Ill.

Do you want to gather your

APPLES AND PEARS

at 1-3 to 1-2 the usual cost? Then write to E. G. Mendenhall, Kinmundy, Ill., for circulars regarding the

California Bottomless Bags

Patented.

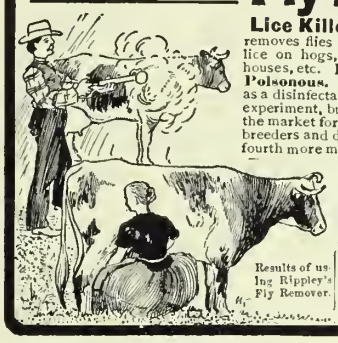
APPLE BARRELS

Cider Barrels and Kegs
Syrup Barrels and Kegs

Long Distance Phone 257

J. A. Schroer & Co., St. Joseph, Mo.

RIPPLEY'S Fly Remover,



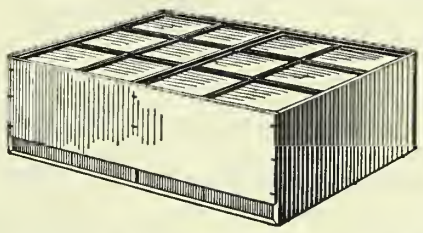
Results of using Ripley's Fly Remover.

Lice Killer and Disinfectant

removes flies and mosquitoes instantly. Kills lice on hogs, horses, cattle, and in poultry houses, etc. **Healing to any sore. Non-Poisonous.** Harmless to man or beast. Acts as a disinfectant; and promotes health. Don't experiment, buy a reliable repellent, which has been on the market for years. Endorsed and used by leading breeders and dairymen. Cows sprayed with it give one-fourth more milk, and increase in flesh. It cures cuts and acts as disinfectant. Money refunded if animals are not protected. 1 Gal. will protect 500 cows. Write for our catalogue, it explains how $8.00 per head can be saved during the fly season by using **Rippley's Fly Remover.** Order early. Price, cash with order, 1 gal., $1.10; 2 gal., $2.00; 5 gal., $4.50; 10 gal., $9.00; ½ bbl. of 30 gall., $28.00; *Rippley's Special Compressed Air Hand Sprayers* to apply same. 1 qt. tin pump, 65c; 1 qt. all brass, $1.35; 1 qt. glass jar tin pump, 90c. *Rippley's 5 gal. Galvanized Sprayer* for applying Fly Remover on large herds and for spraying gardens and Trees, etc. $5.50; 4 gal. galvanized, $5.00; 5 gal. copper, $8.00; 4 gal. copper, $7.00. Breeders' Supply Catalogue mailed free.

Results of using inferior preparations.

RIPPLEY HDW. CO., Box 217, GRAFTON, ILL.
Western Office, Watertown, S. D. Mfgs. Breeders' Supplies and Sprayers.



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Where Others Fail. Result of
BEST WHOLE-ROOT PROCESS

PLANTERS' GUIDE AND FRUIT BOOK FREE. Specialties: Apple, Pear, Peach, Cherry and Plum. All up-to-date varieties—Elberta, Black B. Davis, Chi., etc. More salesmen wanted. **Wholesale direct to planters.** Guarantee pedigree stock, true to name.

Schulze Bros., Brussels, Ill., Deer Plain, Ill.

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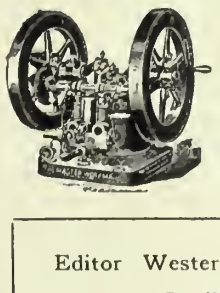
SPECIALTIES

Peach, Apple, Pear, Cherry and Small Fruit Plants:
We are headquarters for one year and June Bud Peach. Including Elberta, Carman and all leading varieties. Before placing your order, write us. We will save you money.

D. W. HUNTER, Proprietor. CHATTANOOGA, TENN.

At Last! A Gasoline Engine



Which any one Can Run and which is Effecting a Revolution in the Business.

It is the "MASTER WORKMAN." An upright engine with two cylinders. Superior to any one-cylinder engine. It has no vibration and can work on a light wagon, or can be placed anywhere. All mechanism is in full view and all parts accessible. STARTS EASIER and quicker than any one-cylinder engine. HAS MORE POWER, consumes less fuel, occupies less space. 1½, 2, 2½, 4, 5, 6, 8 and 10 H. P. Less complicated and has fewer parts than one-cylinder engines. This is the 49th year of its manufacturer, and THEIR GUARANTEE is absolutely to be relied upon. Every engine is sold on honor. AGENTS AND BUYERS WANTED. Send for catalog. Mention this paper.

THE TEMPLE PUMP CO., 15th Place, CHICAGO, U. S. A.
Mfrs. of the Celebrated Diamond Windmills; also full line of Pumps, including Well Purifying Pumps.

Editor Western Fruit-Grower:

I will join the "One Thousand Club," composed of those who will secure at least five new subscribers each by January 1, 1903. Send me the coupons to use in sending in names

Signed.....

Address.....

Write name very plainly.

THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

Volume Twelve JULY, 1902 Number One

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JAMES M. IRVINE.....Managing Editor

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W. B. Leffingwell, Manager.
New York Office, 928 Am. Tract Society Bldg.
W. B. Leffingwell, Manager.

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Entered as Second-Class Matter in the Postoffice at St. Joseph, Missouri.

In Major Holsinger's department are published the resolutions adopted by the late meeting of the Missouri State Horticultural Society. The Major comments on them at length, and we will say that we are in sympathy with much which he says. This work is within the province of the State Horticultural Society, for its purpose is to aid the fruit-growers of the state and to protect their interests. The provision concerning the naming of fruits is all right, but it can hardly be very effective unless all societies cooperate. Perhaps, on the whole, the matter can best be attended to by the American Pomological Society, and this society to in turn advise the different horticultural societies regarding names, identity, etc. What Major Holsinger says in regard to testing new varities of fruits, we believe, is to the point. The Missouri State Horticultural Society has always recommended that new varities be tested very carefully at first, and on a small scale. Other societies recommend the same thing, and this is proper. Few persons can afford to experiment on a large scale, as Benjamin Buckman of Illinois, and many others, do. The greatest care should be exercised in this work, and it is not advisable for anyone to plant largely of any variety which has not been tested in his neighborhood—and the nearer to his farm it is tested the better it will be. But to say that all the work of testing new fruits shall be turned over to two experiment stations is all wrong, as the Major says, for the reason that even the tests which are made there will be of doubtful value to other sections of the state. We hardly believe, for instance, that the Missouri Society would be willing to recommend to a strawberry grower near St. Joseph that he should plant a large acreage of a variety of strawberry plants which does the best at Columbia or Mountain Grove stations. The advice of the society would still be for the grower to test the new variety carefully on his own soil and be guided in his future planting by the result of this test. Is this not true? Then why not let him do this in the first place, since he must eventually do the work himself?

The same is true with other fruits, though of course each grower can be guided by the advice of the experiment stations concerning tree fruits to a greater extent than with small fruits. But the advice of horticultural societies and experienced growers everywhere has always bee, and should be: Each grower should consider his own soil, location and the market which he is to supply, and in his planting should be guided by his experience in this regard. No one can decide for another what varieties he should plant, except in a general way, and it is well that this is so. It stimulates each grower to try to get the best, and only by individual effort can the best results be obtained.

The Western Fruit-Grower explains its position a length, for it will be called upon to publish the notice referred to in the resolutions. We are in sympathy with the intention of the resolutions, but do not believe they will accomplish the end desired, in so far as the testing of new fruits is concerned. We fear if the resolutions were carried out literally the fruit-growers of Missouri would not keep up with the development of horticulture. New varieties which are worthy are being brought out, and the Missouri grower should have them. The best is none too good for the Missouri fruit-growers, but we fear if all new fruits are to be first tested at the experiment stations, they will not get an even start with those of other states. There is also danger that if the testing is all to be done by the experiment stations, growers will rely too much upon the reports of the stations, and thus be led to plant varieties which may do well at Columbia and at Mountain Grove, but which are unsuited to other sections of the state. Is there not danger that even greater harm will result in this way than there is at the present time, where each grower relies to a great extent on his own experience in testing new varieties?

No doubt most of the readers of the magazines of the country have been impressed by the great number of them which have had special articles during the past year on the fruit industry of the United States. These articles but indicate the increasing interest in horticulture, not only by the farmers of the country, but by our entire population. All this should stimulate the fruit-growers to renewed effort to produce only the best products. The consumers are being educated to not only use fruit, but to discriminate in its use. The fruit industry is getting to be a big thing, and is destined to become of still greater importance in the near future.

A reader of the Western Fruit-Grower says he has been offered $1 per barrel for his fruit, and asks if we would advise accepting the offer. Now, that is hard to say. If we had the apples, however, we wouldn't accept it. The only advantage one will have in selling apples now, as we see it, is to be relieved of the risk of carrying the fruit through maturity. But to sell by the barrel will not relieve the grower of this risk. If the fruit is destroyed by hail or wind, bitter rot, or anything else, the grower will still have to stand the loss, if his fruit is sold by the barrel. If the orchard is to be lumped, then that is a different proposition, and if a good offer is made it may be advisable to sell—this kind of a sale will relieve the grower of the risk. Selling one's fruit so early in the season at so much a barrel, is a bad plan, we believe. If the fruit at picking time is worth more, the grower will be the loser; if it is not worth the price paid, an unscrupulous buyer can find so many chances to cull closely that he will not take many barrels, and the grower will still be the loser. Early sales, therefore, according to our opinion, can be most profitable to the grower where the buyer pays so much for the crop—then it is his, and the grower does not take the risk of losing the fruit from any cause. This is our opinion. What say others?

The Charleston Exposition has closed, and the list of final awards made public. Missouri has ever reason to feel proud of the showing which was there made, for the total number of awards received on exhibits of all classess was 129, 100 of the number being medals, and 39 "honorable mention." At the Charleston and Buffalo expositions, the exhibits at each being practically the same, Missouri received 242 medals and 198 "honorable mentions." At Buffalo the horticultural awards numbered 112 and at Charleston 54, a total of 166; of this number there were 42 gold medals, 22 silver medals, and 80 bronze medals. Certainly this isa record of which the state may be proud.

In this connection, it will be well for the state soon to begin work of preparing for the exhibits to be made at St. Louis. If the state has done well at other expositions, how much more should be expected when the greatest of them all is to be held within the borders of the state. It will not do to try to have as good an exhibit at St. Louis as we have had at previous expositions—the standard will have to be very much higher. It is likely the horticultural features of the St. Louis exposition will be one thing which will distinguish it as superior to others which have been held. Preparations are now being made for this, and everyone expects Missouri to far surpass any previous exhibit of fruits and fruit products. It is not too soon to begin this work now, for it will take time to develop the interest which should be manifested. The Missouri State Horticultural Society will be found ready to do its part, as it always has done, and it is likely the exhibits of fruits will be entrusted to its care. To fail at St. Louis would be to fail when all the world expects a great deal of us—and we should see to it that there is no failure.

There is a general feeling among nurserymen that prices will be about the same next season as they were during the season just closed. Last summer's drouth shortened the supply of stock in several lines, and the high price is justified. Peach trees will be worth as much next spring as they were this season, for the demand is expected to be heavy, especially in the South. Fruit-growers, however, generally understand that fruit trees sold too low for many seasons, and they will hardly object to paying fair prices for good stock. All orders should be placed early, however, else there will be disappointment, as was the case this season.

Nurserymen owe it to their customers, however, to not accept orders for stock which they cannot fill. We know of many cases the past spring where customers placed their orders early, and were assured that all varieties could be furnished as ordered. Late in the season when it was too late to order elsewhere, came word that the supply of stock of certain varieties was exhausted, and that part of the order could not be filled. Then the customer was justified if he lost patience, for he had lost a year's time in the planting of his trees and plants. It seems to us that there need be nothing of this kind happen in case of trees, for the nurseryman should take stock in the fall, even though he does not dig and store his trees. If the trees are dug and stored in frost-proof cellars, as is done by many of the best nurserymen, and which practice is increasing every year, then of course the exact number of trees of every grade is known, and orders should be declined after the supply has been exhausted. In the case of small fruit plants, it is a hard matter to estimate the supply of any given variety. In the autumn the supply may be large, and the plants be winter killed, as was the case with many growers last season, and of course in such cases it is an easy matter to over-sell one's supply. But if nurserymen want customers to order early—and they all do—they should exercise the greatest care in accepting orders, and see to it that none are taken which cannot be filled.

We are preparing to print a list of orchardists whose names have been sent us, giving the size of their orchards and varieties, and will furnish the list to apple dealers everywhere. If our readers want their names and orchards included in this list, they should send the necessary information at once, together with names of neighbors who have commercial orchards. Send name of every orchardist who has 20 acres or more of apples, and give postoffice of owner, shipping station, size of orchard and varieties. Send this at once, for the list should be printed shortly, so that the buyers can begin to look out for the prospective apple crop. There will be no charge, remember, for this service.

The Western Fruit-Grower desires good photographs of orchards, fruit subjects, etc., which show the care taken by our readers of their orchards, vineyards, berry plantations, etc., or which show the results achieved by them. Cuts can be made of those which are suitable, and due credit will be given all which are used. It should be remembered, however, that only clear photographs are available, for cuts cannot be made from those which are dim and indistinct. Let us hear fromm those who have good photographs—this can be made an object lesson which will help others to succeed.

Levi Chubbuck, editor of Colman's Rural World, has been appointed inspector of Indian agencies by Secretary of Interior Hitchcock. He is charged with the duty of inspecting the farm work of the Indians on the different reservations of the country. Mr. Chubbuck is a most estimable gentleman and has been prominently mentioned as superintendent of the dairy department of the St. Louis World's Fair in 1904. He is well known to most Missouri fruit-growers, who will rejoice to learn of his good fortune.

It is estimated that the codling moth destroys $30,000,000 worth of apples every year. If growers once decide to fight this pest systematically, there is no question but much of this loss can be prevented. Certainly the money is worth saving.

The Greensboro Peach

J. H. Hale's Georgia peach orchards began to ship fruit on the 15th of June, the first shipment being of Greensboro. They went to New York, where they brought $2.50 per crate. The verdict of the fruit trade in regard to the peaches was said to be most encouraging, and many declared it to be the best early peach ever received in New York. This report is in keeping with other reports concerning the Greensboro, which is certainly one of the best, if not the best, early peach. It has also some claims to hardiness, as has the Triumph. It is said that on the old Chandler farm near Argentine, Kan., these varieties are the only ones showing any fruit whatever this season. The Triumph is another good early peach, but is not so attractive, and its woolly appearance also subjects it to rot in damp seasons.

Apples in Virginia.

Miss Abbie Huff, Bent Mountain, Roanoke, Co., Virginia, sends in a list of orchardists in that vicinity for our list of commercial growers. Miss Huff herself has quite a nice orchard, and she says there are many which are most promising "No better apple soil than that along the Blue Ridge Mountains is found in America," writes Miss Huff, "and there is a fine opening here for persons to engage in the fruit industry. We grow the Albemarle, or Newtown pippin, to perfection, and all kinds of fruit do well. Land can be purchased at low prices, and trees live to an old age. The Western Fruit-Grower should have a large circulation among our orchardists, and will have soon. My father sent in a club a few days ago, which Columbia the variety succeed and at no doubt will help start the paper here, and once they see it the people will have it."

About the Western Fruit-Grower.

This is the dull season of the year with all agricultural publications, both in advertising and subscription departments. We desire to take advantage of it to talk to our readers along a personal line.

The Western Fruit-Grower is now five and a half years old, and has a circulation of 20,000 copies every month. We believe few farm papers have ever made a better record, and that none had more friends at same age than our paper. The remarkable growth has been possible only by the co-operation and help of our readers. Over 75 per cent of our new subscribers are secured through those persons who read and appreciate the Western Fruit-Grower. We have tried to show our appreciation of this interest by improving the paper in every way until today the Western Fruit-Grower is quoted as the leading fruit paper of America. One has a larger circulation but it is connected with a nursery, and loses prestige by reason of this fact.

But our paper is not yet what it should be if it becomes the great paper to which the fruit industry is entitled. Horticulture is now such an important industry in this country that its leading paper should be in every way a great publication, with several hundred thousand circulation. We intend that the Western Fruit-Grower shall occupy this place. Are you willing to help? If the paper has helped you before—and we know it has—think what possibilities it will have along this line when it has a great circulation, with an influence which is far-reaching. Every reader can help it to this end, if he will. We do not ask that you pay a higher rate of subscription, but we do ask that every reader try to get at least one new subscriber before September 1. Are you not willing to do this? It will take but a moment of your time, for subscribers can easily be secured. Every person who has even an orchard for home use should read the Western Fruit-Grower regularly. Won't you do this today? Don't delay.

And you can help in another way. If your time has expired, renew your subscription promptly. On the address slip on your paper, or on the wrapper, if your paper comes in a wrapper by itself, is the date at which your subceription expires. For instance, if the address reads, "John Jones, June, 02," the subcriber may know that his subscription has expired with our June number. Look at the date on your address slip, and if your time has expired, send the money for your renewal today. The sum—50c a year—is a small sum to you, but several thousand of them amount to a big sum to us. Not many subscriptions usually come in during the summer, nor is the advertising patronage heavy, and for that reason we hope every reader whose subscription is now due or past due will send the amount for the coming year at once. Don't put this off until you forget it. Attend to it at once.

And try to send at least one new subscriber with your renewal. If you send five new ones, remember the five can be sent for $1. If you send ten new ones for $2, your own subscription will be advanced one year free of charge. Isn't that a liberal offer? We are trying hard to increase our circulation to 30,000 by January 1, and we will do it, too,if you will help. On September 1 advertising rate will be advanced to 15 cents per line, $2.10 per inch, and this circulation will be necessary to justify this increase. And we will promise that beginning with our anniversary number in January we will print the handsomest and best fruit paper you have ever seen. That will be our part of the agreement.

We are counting on the support of every one of our 20,000 readers in this work. There is an increasing interest everywhere, and we are going to have lots of help from the East and the far West. Note what a West Virgina reader says. Mr. Morlan has already sent us new subscribers, and will do better. Read what he says, and "Go thou and do likewise."

"I want to say that the Western Fruit-Grower is the paper for us. Just suits us—practical, instructive and intensely interesting; run in the interest of no nursery, and with no quack medcine ads. Only one thing wrong, and that's the name; sounds too foreign to some of us 'sang' diggers out here among the West Virginia hills. Say, brother, change that name to something more nationalized, and we'll surprise you what clubs of subscribers we'll send you next winter."—A. E. Morlan, Dallison, W. Va.

Tut! tut! Friend Morlan, that word "Western" doesn't hurt anything. How would it do for us to put it in small type, or to omit it altogether, leaving the name simply "The Fruit-Grower." This wouldn't be bad, now, would it? The Western Fruit-Grower even with the word "Western" included is now recognized as the leading fruit paper of the country, and it might be fitting for the paper at the top of the list to be known as simply "The Fruit-Grower." How would that sound? But send along that big club of subscribers, Mr. Morlan, and all other friends in the East and West. The name doesn't affect the reading matter in the least, and we know every subscriber will be pleased with the paper. We are counting on having 30,000 paid subscribers by the first of January. To secure this number it will be necessary for our present subscribers to send in good lists. Do this work at once, and we will show our appreciation by still greater improvement. Now is the time to hustle. Send your list at once.

Colorado's Summer Meeting.

A letter from Charles L. Parsons, secretary of the Colorado State Horticultural Society, says the summer meeting of the society will be held at Boulder, July 23 and 24. "Demonstration is to be the key note of the meeting," says Mr. Parsons, "and there will be two sessions in the field, testing spray pumps, wet and dry, showing methods of cultivation, irrigation, etc. An earnest invitation is extended to all persons interested in horticulture."

This plan shows the enterprise of the Colorado people. They are up and doing out there, and Colorado apples are making a record in the markets of the world. Apples are packed in boxes to a great extent, and the fruit makes a spendid showing. We hope to have some notes concerning the meeting to be held at Boulder.

Disparene for Spraying.

From many quarters come reports of the use of Bowker's Disparene as a substitute for paris green spray mixtures. This preparation, Disparene, is an excellent form of arsenate of lead, which is preferred by many entomologists to all other arsenical preparations. Disparene, too, is being more generally used by practical growers. In the first place, Disparene can be used much stronger than ordinary mixtures without burning foliage. It will remain in suspension much better than paris green, and this quality will be appreciated by those who have had the poison all settle at bottom of the tank. Finally, Disparene will stick to the foliage better than any known preparation, and is not even washed off by a hard rain.

Disparene is used in spraying the large elms in Boston to prevent injury by the elm leaf beetle, and is giving satisfaction. The Bowker Insecticide Co., Boston, Mass., will be glad to send full particulars concerning Disparene to all who ask for same. Mention Western Fruit-Grower when writing.

The Cardinal Respberry.

A postal card from A. H. Griesa, Lawrence, Kan., says that in order to get a full report from every plant of the Cardinal raspberry which was sent out as a premium by this paper last spring, he will replace free of charge every plant which failed to grow a year ago. The only condition is that those who receive them send report as to growth, hardiness, quality and productiveness of the Cardinal as soon as it has fruited. Send all requests for replants to A. H. Griesa, Lawrence, Kan., and all reports concerning the behavior to the Western Fruit-Grower. And, of course, Mr. Griesa wants to hear from every plant which grew last spring, and which doubtless bore fruit this season.

Notes on Apples.

Our third year work spraying has so far been entirely successful. Canker worms, I think, were a blessing in disguise, as many fruit-grower never would have sprayed but for their ravages. They are not nearly so much to be dreaded as codling moth. Years of patient experimenting and observation lead us to the opinion that the theory that scions cut from bearing treees produce early bearing trees is of doubtful value. Now, let us offer this suggestion instead, that it is a known fact that trees of a certain form are surer bearers han those of different forms. Again anyone who knows anything about the character of a young tree knows that you can train any tree to almost any shape desired. In saying the above, I have not overlooked the fact of the inclination of different varieties, soil characteristic, etc.

Now what I wish to say is this: A tree of any variety that is a bearing variety properly planted in a soil adapted to apples, at a proper elevation, properly drained, cultivated, trained and sprayed will, when climatic conditionsare favorable, produce regular and good crops, regardless of whether the tree was cut from a nursery row or from a bearing tree. But fearful that we be misinterpreted, we wish to say that we have not in the least overlooked the fact that some trees seem to naturally take on the proper shape and character of wood to be fruitful, while others are the reverse, and all the trees from the same cuttings. Now there is where the art of fruit-growers must remedy the inclination of the tree going wrong; and we do not hesitate to say that tree surgery is as exact a science as animal surgery, and that the results are not different in essentials. One half the entire top of a growing tree may be removed and the tree compelled to assume the desired form and not the least check or harm results therefrom, while we admit that in the hands of a tree butcher a tree may be by a few small illy done cuts.

But we have probably said more than there is space for. It would take columns to say just how, but we enter on what we say fearlessly, as we are persuing no theory, simply following lines that have given practical results.

B. F. STUART.

Rushville, Mo.

To Our Advertisers

On Sept. 1st the advertising rate of the Western Fruit-Grower will be advanced to

15 CENTS PER LINE
$2.10 PER INCH

This increase is on basis of circulation of 30,000 COPIES PER MONTH, which will be guaranteed for year beginning January 1, 1903.

Until Sept. 1, Contracts will be made for continuous advertising at rate of 10 cents per line, $1.40 per inch. This rate, however, is made on condition that one inch or more be used in each issue beginning with September number.

Our guaranteed circulation at present exceeds 20,000 copies per month. Circulation will be proven on request by affidavit, postoffice receipts or by allowing an examination of mailing lists.

Contract for Space Now AND SAVE MONEY.

WESTERN FRUIT-GROWER
ST. JOSEPH, MISSOURI

Watch Your Date

The date on which your subscription to the Western Fruit-Grower expires is printed on the address slip on your paper, or on the wrapper, if your paper arrives in a separate wrapper.

Look at it, and if your subscription is now due or past due, renew at once. Fifty cents is a small item to you, perhaps, but the aggregate amounts to considerable to us.

Examine the date on your paper, and send 50 cents today for renewal. If you want to pay for three years in advance, send $1.00 for the three years. This will make the net cost only 33 1-3 cents a year—less than 3 cents a copy. Attend to this today.

The Western Fruit-Grower
ST. JOSEPH, MO.

New Haven Nurseries

NEW HAVEN, MO.

Location, 67 miles west of St. Louis, on main line Missouri Pacific Railway.

We are on the market for Fall of 1902 and Spring of 1903 with over one and a half million fruit trees. They will be grown to the highest possible standard. Will book orders now at lowest prices and would advise early contracts to secure varieties and grades wanted.

A personal inspection of our stock is invited. 200,000 of our two-year Apple are all on heavy well branched whole roots, which fact enabled us the past sason in securing a good growth in spite of the great drouth of 1902.

Our Peach Trees are all budded on seedlings from native pits and trees produced are not excelled in quality anywhere.

New Haven Nurseries, New Haven, Mo

Answers to Queries

R. M., Compton, Mo.—There is something wrong with my raspberries. The Kansas bloomed all right and formed small berries, then stopped growing and turned a brown color. What do you think caused it?

Answer by Major Holsinger: The information given is too meager to allow one to form an opinion. There are several causes either of which might have brought about the conditions named. First. anthracnose; this disease has been very prevalent, many plantations being entirely ruined by it. Frost may have caused the damage; we had frost last year on the 25th of May that ruined our berries. Again, the raspberry is a shallow-rooted plant and cannot stand a low temperature. Either of these causes might have caused the trouble, and this is the best information we can give from the facts at hand.

Mrs. W. F. McC., Hot Springs, Ark.—I planted two-year plants of Columbian Mammoth White Asparagus last year. Shoots came up this spring, but they were small and green—not what I had expected, for no expense or labor had been spared in planting the roots. Pits nearly two feet deep were dug and filled in with good cow manure, for we knew the needs of the plant. Now. where is the fault? What do our plants lack?

Answer by Major Holsinger: The difficulty doubtless has been in the plants. Somebody evidently has imposed on you. I, too, have the same complaint, having purchased Columbian of a certain firm in Maryland, and it turns out to be a green variety, no better than Colossal, Palmetto or Barr's. I sent the house a complaint, also sample of the asparagus, but received no reply. A firm doing business cannot afford indifference in these matters. Satisfaction should be given when mistakes happen, and when a firm refuses to reply to a complaint it borders on imposters.

A. H. S., Independence, Kan.—I send Major Holsinger a short limb from cherry tree, with fruit attached. The tree from which the limb was taken is an upright grower, bears regularly large crops of fruit very mild to the tasts when fully ripe, and very dark in color. The fruit grows in clusters along the body of the limbs. It is the only tree of the kind that I know of anywhere, and it has been in bearing for years. Can you tell me what variety it is? I want to get some more trees like it.

Answer by Major Holsinger: The cherries arrived on the 8th, having been four days on the road, and were nearly gone. Evidently the variety is Olivet. The Olivet is the best tree of the Morrellos; leaves very large, trees upright, fruit larger than any others of the Morello type. It sells better than any cherry we grow on account of its size and beauty. We have had only one full crop of this variety here. But remember we are 100 miles north of Independence, and this may account for the difference in bearing qualities. I certainly would plant the Olivet if it were not so shy in bearing. With your experience, however, there is no Morello I would recommend to plant where Olivet succeeds so well. Usually the Olivet has about ten per cent of crop; that was the case this year.

J. F. B., Avoca, Ark.—Can apple and peach be grafted the same way? If they cannot, why?

Answer by Prof. Howard: The peach can not be successfully grafted like the apple. The exact reason is probably due to the fact that when the sap of the peach tree comes in contact with the air it undergoes a change and forms a gum or wax, and thus stops up the vessels in the tissues in its passage from stock to scion.

A. R. L., Hachberry, Kan.—(1) What causes the leaves on my young pear trees to bleach and die? I enclose some of them. (2) Will pecans grow as far north as here (39o)? I can put them on a sandy loam 6 to 10 feet to water. (3) What kinds of strawberries and how many of each shall I plant to give berries for six persons, with a few to spare?

Answer by Major Holsinger: (1) The leaves sent me indicate blight. (2) Yes, pecans can be grown wherever the shell bark hickory will grow. They are quite common in the timbers of Eastern Kansas. Your soil I would think just suited to them. (3) 100 strawberry plants well grown will, if properly treated, insure as many as a family of six could possibly consume on table. Varieties—Aroma, Crescent, Warfield, Windsor Chief, Miner, Splendid, Parker, Earle, Clyde. This list is sufficiently long. There are many other good sorts.

J. C., Ephrata, Wash.—I have a peach orchard that is affected with something like the yellows. Would like to know something about this disease and to treat it, as I am unacquainted with it; it never made its appearance here before.

Answer by Prof. Howard: Peach yellow is one of those obscure diseases of which, unfortunately, we know but little. The first indication of yellows is the premature ripening of the fruit, which is unnaturally blotched and clouded with red, and is one of inferior taste, being insipid or bitter. This may occur a few days of a few weeks before the normal period of ripening, and may include allthe peaches o nthe diseased tree, or only a part of them. In the latter case the remainder ripen at the usual time, thus helping to identify the trouble. Either before or after the ripening of the fruit, the winter buds may prematurely burst into growth, forming numerous tufts of small leaves along the branches. Usually the trees also put out numerous sprouts from the trunk and main branches. This sprouting and multiple leaf growth is not noticeable in early autumn. It may, however, take place in summer, or the buds may remain dormant until very early spring before they assume this character of growth. Fall flowering is also a symptom of yellows, though it may occur from other causes. If the tree is allowed to take its natural course, it usually presents all of the above characteristics before it dies, but it is impossible to predict in what order the symptoms will occur. If the disease is allowed to go on year after year, however, its characteristics become more noticeable. There is a general falling off in vigor, the fruit is undersized, the early ripening becomes more marked, the leaves are small and sickly, often becoming cup-shaped, and many of the buds fail to start in spring. If yellows once appears in any part of the tree, death is sure to ensue sooner or later, the tree seldom lasting more than five years at most. There is no known cure for peach yellows. The only remedy against its spreading lies in promptly cutting down and burning, root and branch, every tree that is known to be affected. Cutting away the affected parts will not save the tree. This has been proved repeatedly. The cause of the yellows is not known, the most careful investigations having failed to find any trace of fungus or bacterial growth to which the disease may be attributed. We know the disease only from its symptoms. To my knowledge this disease has never made its appearance in the state of Washington, but if it is there, it is a matter of the utmost importance to the horticulturists of the state that it be stamped out. Yellows must not be confused with rosette, which is another unknown peach disease causing tufts or rosettes of leaves. The fruit withers and drops while green or else ripens at the normal season, but is without the red blotches, and one season is usually sufficient for this disease to kill the tree. Preventive methods are the same as for yellows.

J. R. D., Sharon, Kan.—I would like for you to answer in question column in regard Arkansas Beauty and Arkansas Black apple varieties. Are they good varieties to set for commercial orchards? (2) Are they as good as the Ben Davis type? (3) Would it be advisable to set very many Arkansas Black or Arkansas Beauty?

Answer by Major Holsinger: Be very careful in planting new varieties. I have little experience with the varieties named; what I have is unsatisfactory. Stick to Ben Davis if you would have the money. You can't plant too many of them. If you think so, then swithe off and plant Gano. Let some one else plant the novelties in a commercial way.

G. A. D., Browning, Ill.—I have an orchard of peaches, cheries and apples on a hillside too steep to cultivate. I have kept a few square feet cultivated around each tree for ten years. Is it necessary to continue this cultivation? Or in other words, will trees, ten years old, thrive in sod after being cultivated ten years?

Answer by Major Holsinger: So many things enter your question that I hesitate to reply. If your soil is strong then you would be safe in letting up on the cultivation. If poor and thin soil then your safety would lie in keeping up the cultivation. With the little knowledge I have of your section I will have to qualify. You might let up, noting for yourself the result.

F. C., Morenci, Ariz.—(1) Can grapes be transplanted after being five or six years old? If so, what is the best way it can be done? This spring I planted a portion of my vineyard to plums. I believe them to be more remunerative. (2) Is there any way to stop the gum from oozing out of peach trees? I bought the place three years ago; it was not attended to until I took hold of it. (3) Can nursery trees be planted in the same hole where I grubbed trees out of? I have no experience as an orchardist and would be thankful for information.

Answer by Major Holsinger: (1) Yes. But I would rather plant young vines than older ones. The only way is to cut back vigorously to, say 18 inches. They grow slowly until fully established. I would rather pay for new plants than bother with such old ones. (2) The gum exudation is a sign of disease or insect enemies. If it is at the collar, clean the tree of borers that threaten the life of the tree. Be quick with it, ere the parent is on the wing. Where the tree is sick, throwing out gum it is a sure sign that your tree is on the decline. You can do little for such trees. If the gum comes from a bruise on the bark it will heal over.

W. T. C., Edina, Mo.—Can you tell me the cause and how to prevent the gum coming out on peach trees? I have about 60 trees and they seem to be badly affected, as many as twenty places on many of them. Under all these places when I cut in, the tree seems to be dead and rotten. Is it best to cut all this dead bark away?

See answer to F. C., above. It covers your query.

M. T. P., Warrensburg, Mo.—While I like Mr. Crawford's writings on strawberries very much, yet I would like a little advice from Major Holsinger, as I am only about sixty miles from him and our climate and soil conditions are nearer the same. I have been raising berries for some time, but am one of the suckers that are easily caught with big advertisements. I generally have about twenty to forty varieties on two acres. I think this a mistake and shall quit it. (1) What imperfect berries do you use for early, midseason and late? (2) What do you use to fertilize each variety with? (3) Do you consider Parker Earle a good fertilizer for Haverland and Warfield? (4) What do you think of Sample? (5) What is the best black cap and red raspberry with you? (6) What blackberries are best and most profitable? (7) Do you consider dewberries as profitable a crop as blackberries? If so, tell us how you grow them. Our raspberries fall down so bad. Do not stand up as they did when I was a boy; but we had them in hedge rows then—now I am trying Kellogg's hill culture. I had about one acre of strawberries this year. Season was good and berries extra fine. Crickets did not bother. (8) Do you use fertilizer on berries? If so, what, and when applied?

Answer by Major Holsinger: (1) I would recommend you stick closely to Crawford. He knows lots more about strawberries than I. I am sorry to make the confession, but I am weak on the whole system of fertilization of the strawberry. When we plant a variety we plant it regardless of its staminate or pistillate sex. This summer and last we had an acre of Warfield all by itself. Did they fertilize? Well, I reckon. I have seen Crescent and others do the same. Always providing they have plenty of water. I have seen acres of the best staminates button when water was withheld, and as soon as water was supplied, presto! what a change. This was our experience last summer. Whether certain varieties need a fertilizer is a question unsatisfied. That water is a necessity to the development of the strawberry I know. Alas! "We make unto ourselves idols and find them clay." Now, with all my infidelity on this question of strawberry sterility and strawberry fertility we do grow them. (5) The best black can raspberry is the Cumberland. The best red raspberry is the Thwack. (6) The Snyder and Early Harvest. (7) I do not consider dewberries as profitable as blackberries. To make your raspberries stand upright you should pinch out terminal bud when two and one-half feet in height. This will cause them to throw out laterals, making the plants stocky. We find our soil rich enough to grow good berries. Last season my sons experimented by using the different kinds of fertilizers from the packing houses. They saw no appreciable results from any. Where soil is too thin there is, I think, nothing equal to barnyard manure.

W. E. M., Summerville, Pa.—(1) Will the Major please tell us in the next issue if we should do any pruning on seedlings at time of setting bud? (2) Can peach trees be successfully budded next year that are too small this season?

Answer by Major Holsinger: (1) It is necessary to prune peaches at pruning only sufficient to remove branches that will interfere with your work. Should a limb or branch be in the way don't hesitate to remove it. (2) Yes, a good way is to bud in spring as soon as sap runs sufficient to lift the bark. Buds should be held back in cold storage or in the ordinary ice house. Soon as the bud is set cut off the tree above the bud. You can force it to grow at once when bud fails in the fall to set. This is the usual practice among many nurserymen.

R. M., Compton, Ill.—I understand the difference between the plum gouger and the curculio is that the plum gauger comes first and cuts a little crescent cut in the plum and then lays an egg in the cut to hatch. The curculio is about the size of a small black bean and nearly as hard. He has a short snout. I have caught him puncturing the plum. He then turns around and lays an egg in the plum. Now, please tell me how these two insects propagate themselves when there is no plums? There will not be a peck of plums in this township. Now how are these two insects going to raise their young? There seems to be just as many the next year after a plum failure.

Answer by Prof. Stedman: They will feed and develop in peaches, apricots, cherries and apples as well as plums.

R. C. D., Arkansas City, Ark.—Would like to hear through your paper if English walnuts were ever tried in Southern Kansas and how they succeeded? Also how to graft English walnuts on the black walnut? Where could I get a book on English walnut culture? Would like to know how to handle Keiffer pears—when to pick and how to handle after picking?

Answer by Major Holsinger: (1) English walnuts cannot be grown in Kansas. Many have tried them to no purpose. (2) Keiffer pears should not be picked until fully matured. This you must determine for yourself. Usually when seeds are fully colored, which is not much before frost. (3) Place in some shady place or darkened room and as the fruit yellows pick out and market. Our custom is to place on shelves not more than a foot in depth, so we can move easily, picking fruit as it yellows and marketing at once. The pears will not sell well unless highly colored.

S. H., Olinda, Cal.—I would like to have Mr. Crawford tell us what he knows about preventing the rotting of strawberries. Our land is heavy clay loam, with a slight admixture of gravel and whenever the surface is wet the berries that touch the ground rot underneath. What can be done to prevent?

Answer by M. Crawford: Strawberries should not be allowed to rest on bare soil. In this climate they would be not only in danger of rotting in a wet time, but the fruit would surely get spattered with soil when it rained. A mulch of straw would prevent all this. It would probably increase the crop at the same time.

H. C. B., Havre-de-Grace, Mr.—I have been informed that shell lime (a by-product of gas houses) is a powerful insecticide. Will you kindly advise through the inquiry columns of the Fruit-Grower if it is safe to use this gas house lime around young peach trees in order to exterminate borers? Also, will this lime spread over the surface of the orchard after plowing give the same beneficial effects to land as burned stone lime? If not, what percentage is its effectiveness to burned stone lime on land? Will it exterminate borers?

Answer by Prof. Stedman: It is not safe to use gas lime around fruit trees, since it is apt to kill the trees. As regards its use on the land I cannot answer.

Subscriber, New York.—How about using gas tar on trees as a preventive of injury by mice and borers?

Answer by Prof. Booth, Geneva: The use of tar on trees as a preventive of borers and mice has been considerably practiced at different times and there is an unsettled controversy among horticultural experts as to whether it is advisable or not. A great many of our fruit growers have used it for years with no bad effects. Others report the utter ruination of all trees so treated, and all gradations between these two extremes in the shape of minor injuries. Why there should be such a discrepancy in results seems difficult to say. Whether it is due to a different kind or quality of tar used in different sections of the country or whether the difference is in the growth of the trees in different neighborhoods, or whether it is due to the time of the year when the tar is applied is not known. We have heard it ascribed to all three of these causes. The use of tar seems generally more injurious to apple trees than to peaches. It is an absolute preventive from the attacks of borers and mice so far as the tar extends, although of course they may attack the tree above or below where the tar is applied. Several experiment station workers are working on this question now. If some means can be devised by which tar can be used with absolute safety, it is probably the most efficacious of any known remedy for both borers and mice.

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for Fall, 1902, and Spring, 1903, trade. Prices right and stock the best. All propagating done from bearing trees. Price list will be ready August 1. Entomologist certificate will be furnished with every order. Our leaders are Ben Davis, Jonathan, Ingram, York, Elberta, Emma, Salway and Family Favorite. Address
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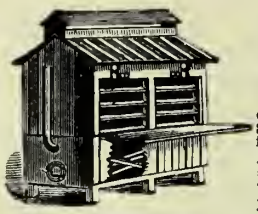
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Rogers' Dewberry

(Continued from Page Three.)

berries." The former does not do well berries. The former does not do well, climate and soil being too warm. Houghton gooseberry was said to be too small; Pearl and Downing are almost identical, but Mr. Baender prefers the Downing. Would give gooseberries and currants good cultivation, and prune but little. Wilder and Pomona currants promise well, and the Red and White Dutch are among the most reliable.

Prof. Howard recommended Downing gooseberry and White Dutch currant. Major Holsinger said both currants and gooseberries had been badly damaged by the cold winter of three years ago. Houghton gooseberry is most profitable.

Varieties of cherries were discussed, and Major Holsinger recommended Early Richmond, Montmorency, Eng-Morello and Wragg.

Secretary Goodman said Governor Wood does well on sod; in fact, most cherries do well in grass.

Mr. Wild recommended the Morellos and the Royal Duke. This latter variety, Mr. Murray said, is not the same as May Duke.

Mr. Jenkins of Spring Garden read a paper on "Some New Fruits," in which he recommended that growers beware of novelties, leaving the first testing of all such to be done by the experiment stations.

Wednesday evening Mrs. G. E. Dugan of Sedalia read a paper on "The Inspiration of Springtime," full of practical suggestions for the care of flowers, etc.

Prof. I. S. Hoover of Warrensburg sent a paper on "Parasitic Enemies of Living Plants." He recommended the removing of all diseased fruit and plants from the orchard or garden.

Mrs. A. Z. Moore's paper on "How Best to Handle the Peach," was read by Mr. Tippin. Mrs. Moore is well qualified to write on this subject, for she superintended the packing of fruit from Louis Erb's big farm for several seasons. She would pack in baskets or boxes lined with sacking; pack fruit in baskets and get in car as soon as possible after taking from tree; women make best packers, as they are apt to bruise fruit less. Pick fruit just before it is ready to eat from hand, but do not pack any soft or damp fruit. Grade carefully and wrap each fruit to suit your market. Sell on track if you can; if not, then ship to the best commission you can find in each market.

Thursday morning a business session was held. Among other important business matters taken up was the matter of making an exhibit at the St. Louis exposition in 1904. Secretary Goodman said that fruits from this season's crop should be gathered next fall and saved for the fair, for it may be our crop in 1903 may be a failure. On motion of Mr. Murray, this matter was referred to the executive committee with power to act.

The resolutions adopted by the society in regard to renaming old fruits and the planting of new varieties are published in Major Holsinger's department in this issue.

H. W. Jenkins of Booneville read a paper on "Peach Culture." The two essentials to success, he said, are proper pruning and cultivation. Begin the pruning of a peach tree when it is set out, likewise the cultivation. If this work is properly and persistently done, success in growing peaches will follow in Missouri.

D. R. Williams of Maitland recommended high lands for peach orchards. He would prune peach trees severely, and if trees are injured by cold would cut back severely.

The members discussed crown and root gall of nursery stock, but no definite conclusions were reached. Mr. Murray did not think there was cause for much alarm, although he would not recommend planting diseased trees.

One of the real treats of the meeting was the humorous, yet practical, talk of Herman Kelsay of Miller County who told of his work of planting an apple orchard.

Treatment of apple orchards was discussed at length. Conrad Hartzell said bees and birds are natural helps for apple growers; corn, peas and clover are good crops for rotation in orchard, plowing them under to add humus to the soil. It was generally recommended that clover can be grown in orchards on hillsides too steep to cultivate, the crop to be mowed and allowed to lie as a mulch. For a crop to be taken off, corn is best; remove the ears and allow the stalks to remain.

Spraying was also touched upon. Mr. Schermerhorn of Illinois reported excellent results from spraying. W. D. Maxwell of St. Joseph talked in favor of the dust process, saying it is cheaper, more easily applied and will do more good. The quantity of poison in the dust can be increased at will, which is not the case with the liquid. Mr. Maxwell believes dust should be applied in early morning when dew is on the trees. He has had excellent results from this method.

Some of the members did not agree with the theory that dust must be applied when dew is on, but Secretary Goodman said they tried to follow the practice of spraying in early morning, and in the evening, in their orchards.

Prof. Mumford of Columbia talked on "Alfalfa Growing," and also told of agricultural conditions in Switzerland; James B. Handley of Quincy, Ill., secretary of the Mississippi Valley Apple Growers Association, paid compliment to Missouri and the horticultural society of the state; Prof. Irish of the Missouri Botanical Garden, read a paper on "Beautiful Shrubs and Herbaceous Plants;" the committee on final resolutions presented its report, and on Thursday evening the society adjourned.

The summer meeting was accounted a success, and it is likely the winter meeting to be held at Springfield next December, will be the largest the society has ever held. Preparations are already being made to this end.

The Wisconsin Meeting.

The summer meeting of the Wisconsin State Horticultural Society was held June 25 and 26 in Waupaca. The beautiful surroundings of this charming little city are becoming known and it is rapidly becoming a popular summer resort. The "Chain-o'-lakes" nearby, upon the banks of which the numerous buildings of the Veterans' Home, summer hotels and private cottages are located, is a charming body of water nestling among green hills and islands, and, winding about the country in its own peculiar fashion, affords a 17 mile waterway for boating.

Waupaca County is the home of numerous seedling apples. The original Wolf River, Northwestern Greening, Lindfield and other less noted but valuable varieties for this climate, are still living in this county. From the nursery of A. D. Barnes of Waupaca, these varieties are being disseminated. Mr. Barnes has a large orchard near by in which apples were grown which secured a gold medal at the Pan American Exposition.

One of the good things the State Horticultural Society is doing is the planting of experimental orchards in different parts of the state. An orchard of 80 trees has also been planted at the Experiment Station for the special purpose of studying fire blight and possible remedies for it. Fire blight was reported to be very bad all over the northern part of the state wherever there are any aple trees. The trees about Waupaca are in sorry plight. While some escape, or are but slightly affected, most of them are very seriously affected and some almost entirely covered with it. Some members reported certain varieties in their orchards as more affected than others, but while the owner of one orchard reported fire blight as very bad on one variety and another variety almost exempt, another grower reported the situation as exactly reversed in his orchard on these same varieties. All agreed, however, that the Transcendent was everywhere a breeder of fire blight and several recommended digging it out. The idea was advanced that rapid growth of wood made a tree more susceptible to blight and that it was better on that account to withhold fertilizers and even to seed the land down to grass in order to check tree growth. It seems to me an erroneous idea, for I have seen apple trees which were growing in very poor sandy sod blight just as badly as in the rich clay land about Waupaca. Besides, trees in such condition cannot bear a profitable crop of fruit and might as well die. A sappy growth, due to too large a percentage of nitrogen in the soil may be undesirable, but better correct the soil by the addition of potash and phosphate fertilizers and keep up a healthy growth, than starve the tree, it seems to me.

Interesting papers and discussions on the "Cherry," "Marketing Plums," "The Blackberry," "Success and Failure of Commercial Orchards for North and Northwest Wisconsin," and other subjects followed the reports and discussions of fire blight. The experiment station at Madison is doing a good work in the line of native plums and is about to undertake the coloction and development of native cherries, and requests samples of promising specimens—not the little red pin cherries, "those having just a stone with a skin around it," nor the choke cherry, but the black varieties growing on large trees.

Some magnificent roses and other flowers were on exhibition as well as numerous plates of strawberries, large and beautiful, mostly standard varieties. The Secor, an accidental seedling found in a Waupaca rubbish heap, seems to me to be a cross between Warfield and Wood, judging from size, form, color and flavor. It is a staminate and may prove of value as a pollinizer for Warfield.

That the ladies of the horticultural society of Waupaca County know how to set a table with all the delicacies of the season was abundantly proven by the dinner served at the Davis House.

If your brain won't work right and you miss the snap, vim and energy that once was yours, you should take Prickly Ash Bitters. It cleanses the system and invigorates both body and brain.

M. Butterfield & Son.

Elsewhere in this issue will be found the ad of the above mentioned firm, proprietors of the Lee's Summit Star Nurseries, Lee's Summit, Mo. We would call special attention to it at this time, because of the character of the ad. The firm makes a feature of two lines of stock, one of which is of particular interest at this time—namely, bulbs for fall planting. Mr. J. S. Butterfield, manager, desires to give every farmer an opportunity to purchase the best Holland bulbs at right prices, and has prepared a special circular in regard to planting, etc., quoting prices on different sorts. We happened to be present when the order was placed for these bulbs, and know they are to be the very best grown. Write for this circular and plant a few of the bulbs, for they give you the first flowers of spring, and in most cases the most beautiful flowers of the year.

In connection with this firm we will say that a few days ago we received specimens of a seedling apricot which the firm has been testing for a number of years. It is of good size, splendid flavor, and Mr. Butterfield says it has born eight years out of ten, being the hardiest and most reliable variety he has ever seen. A limited supply of trees will be ready for sale next spring, but a large block will be budded this season for future sale. We recommend the apricot, for it seems in every way worthy.

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Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

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FOR SALE—The Cuero Nursery; 75 acres; 18 in orchard of various fruits; good five-roomed cottage; every necessary appliance; good pasture; timbered. Good reasons for selling; terms, etc., upon application to Mrs. D. H. Klipple.
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Strawberries Strawberry Notes

By William S. Crawford

THE longer one works among strawberries the more he becomes convinced that he cannot judge a variety by seeing it one or even two years. Some kinds vary from season to season to such an extent that one can reach but few definite conclusions about them till he has watched them several years. This is especially true of new varieties. A correspondent in the East wrote me some time ago that a friend of his who has had long experience in growing seedling flowers and some in growing seedling strawberries, claimed that a strawberry does not become fixed in its habits until it is a number of years old. I believe there is much truth in the statement.

This variation from year to year is well illustrated in the case of the Hunn, the latest variety we have yet fruited. I have been satisfied for two or three years that it is not reliable, from the reports we have received from different parts of the country. With us it always appeared valuable. Last year my friend Sherbondy of this county had it under very high culture. He got very few berries, none of them large and most of them split and in the shape of a lobster's claw. He was naturally disgusted. Last fall my father planted some Hunn plants in his garden and told me he would show me this year that the variety was all right. When I came home a few days ago, he told me that he never wanted to grow any more Hunn, as it was a flat failure. Since then I saw Mr. Sherbondy. He did nothing with his Hunn patch after it fruited last year. It grew up to weeds and grass, and this year he got beautiful berries from it. Such examples make us think that there are some things about culture and varieties that we have not learned yet.

A season like this impresses one with the need of having varieties that are not tender to frost. We had a hard frost on May 9th, when the early varieties were in full bloom and others coming into bloom, and another about three days later. The crop of some varieties did not seem to be hurt very seriously, but the Nick Ohmer was practically ruined with us. On Mr. Sherbondy's place the Nick Ohmer was hurt worst and the Marshall next, although he covered them three times.

We have had a peculiar season. After the frosts we had a hot spell. Late in May it got cold again and nearly all of June has been cool and very wet. The first picking was on June 5th, of Mayflower. It and the August Luther and Johnson's Early came on almost at once as usual. The Johnson's Early is the most valuable of the three with us. Only two or three days later came the Senator Dunlap. We had a large patch of this variety, grown for plants and allowed to run thick. We were greatly pleased with its behavior. Our foreman, who has never had confidence in the Dunlap before, says it proved itself the most valuable variety on the place this year. It was bigger and more productive than the Warfield, which grew near it, similiar in shape and appearance, except that it is not quite so dark in color, dark red clear to the center, of the very best quality, and, what is important in a wet year like this, holds up well in the baskets. I believe it will supersede the Warfield, for the Dunlap will stand drouth better than almost any other variety on the market, and the Warfield will not. Furthermore, it will stand wet weather during fruiting time better than any other berry we have.

We had a big patch of the Miller, also grown for plants. It proved to be a fine variety again. It is big, productive, round and regular in form, bright red on the surface but light inside, of the finest quality, but not firm enough to be a good shipper. I believe it will be one of the best varieties for home use and near market. The Challenge got badly hurt by the frost. My father had some in his garden, however, that made a fine show. The big berries were piled around the plants in heaps. Of the very new introductions, the Lyon impressed us most. It was described by the introducer as an "improved Warfield" and that is a good description. It grew near the Dunlap. It is not quite as large but more productive. Indeed, it is its productiveness that will give it popularity. It is a pistillate and escaped the frost better than many of the bisexual varieties. It has a small plant and runs all over the premises. The conclusion is constantly forced upon me that the varieties that can be depended upon are more likely to be of that class than of the kind that make large plants. I should be foolish to lay this down as a rult, but I have seen so many varieties of this class make for themselves a place in the esteem of growers from which they could scarcely be dislodged, that I have come to look upon a small, long-rooted, free-running plant as a very favorable sign in a new variety. I think that a large part of our varieties are too highly bred for the average grower. Coming of ancestors that have received the best care, the seedlings appear to be like thoroughbred Jersey cattle—they give the highest results if they get the care they need, but, if turned out to shift for themselves, they cannot hold their own against scrubs that have been brought up that way. Comparatively few growers give first-class care, and varieties that have the characteristics of the wild berries that for generations have fought their own fight with weeds and grass, seem the most sure to be able to take care of themselves and bring results.

I have already spoken of the Hunn's behavior. The other very late variety, the Nettie, has been somewhat better this year than last, but not enough so to make us regret having planted none of it this spring. It is big, rough, light colored, has dark seeds sunken below the surface, and is decidedly sour. At the end of the season it gave the largest berries we had. We had not enough plants of the Uncle Jim to tell very much about it, but it impressed us as a valuable variety. Unfortunately it is out under two names. It was introducde by Flansburg & Pierson as the Uncle Jim, the name given it by the Chicago commission men with the consent of Mr. Dornan, the originator. After it was introduced and sold to a number of parties, including some experiment stations, the Michigan State Horticultural Society concluded that Uncle Jim was not a good name and called it Dornan. That society has not yet seen fit to change the name of the Haverland or Bubach, so far as I have heard, and I hope it will not.

The Palmer was not a great success here as seen on a few plants. It was a small berry of the Michel class. I was not disappointed in having it fall short of the claims made for it at introduction. They could be realized only where the best care was given and all conditions were favorable. The Luxury showed at fruiting time a small, rusty, unproductive plant, bearing roundish conical, smooth, dark red berries with the calyx dead—not a desirable condition.

One man who visited our place from a considerable distance said his trip was worth while just to see the Downing's Bride. Like others, its fruit was borne on plants that we had failed to sell in the spring. Under the circumstances nothing wonderful was to be expected, but the fruit was of good size, dark red, every berry like every other one in form and almost so in size, smooth on the surface, as glossy as any berry on the market, red clear through, of the very best quality, productive and a good grower. What more would one ask? It is not very well known, as it was never regularly introduced, but those who have been fruiting it for some time, so far as we have seen their reports, unite in praising it. Doubtless there will be unfavorable reports when it becomes better known.

The Bennett is another pistillate about which not much has ever been said, but this year we had a chance to see that it is fully as valuable as we had ever considered it. It bears medium large, regular conical, dark red berries in very large quantities, and they will hang on the plants without spoiling longer than those of almost any other variety. The Gibbson, which grew near, had beautiful plants but only a few berries. It acted similarly at Mr. Sherbondy's also. The Parsons' Beauty made its usual fine record of a big crop of large, dark red, conical berries. It is going to prove one of the most valuable market berries we have. The Pocomoke, which, we were not much pleased with last year, proved a fine variety this year. It is almost exactly like the Parsons' Beauty in growth—large plants with dark colored leaves—and the fruit is of much the same general character. They are both much like the old Wilson, increased in size both of plant and fruit.

Mr. Sherbondy found the Lloyd his most valuable early berry this year, as he did last, but he will continue to grow the Marshall also, as his trade demands it. The Lloyd is another variety which is unfortunate in having two names. The other name is Seaford. Mr. Sherbondy tells me that the Klondike is the most valuable late variety he has seen, and that corresponds with our opinion of it. The plant is small, but it bears a large crop of surprisingly large dark berries. The quality is not the best, but the size, appearance and lateness cause even private customers to overlook the too great acidity. This variety is the Klondike that came from Massachusetts. There is another from Louisiana or Mississippi, sometimes called Cloud's Klondike and sometimes merely Klondike. I am not acquainted with it.

A correspondent writes: "We have a large strawberry bed set last fall. There are lots of large plants that never had any blossoms. They have lots of runners. Are they any good?" That letter is from New York, and another on similar lines comes from Missouri. The writer of the latter suggests that the drouth there last year probably prevented the plants from forming fruit buds. I should say that he is right to some extent, at any rate; but it not likely drouth had much, if anything, to do with the New York case. "Self preservation is the first law of nature." A strawberry plant first looks out for its own life, then it runs or bears fruit if it can. A plant set in the summer or fall, if drouth comes on, has all it can do to live. All the moisture and food its roots can collect are needed to build itself up and none is left for fruit buds. In the same way a runner plant formed late in the fall has not time enough before winter to build itself up and form fruit buds, too, so the latter function has to be neglected. Such plants set that fall or the following spring will frequently not blossom, but will run more freely than those that do bloom. There is, however, another cause for plants failing to blossom that occurs perhaps more often than the above. That is failure to have the earth free from cavities. My father cites several instances in his experience where parts of rows have failed to blossom because the plants had been set on sod turned over and, where one furrow was turned upon the next, there was a cavity, and the plants set over it were the ones that failed to bloom. The roots follow the lines of least resistance. In going through open ground they do not get in close enough contact with the earth to get the moisture and food in solution between its particles. "To get the water from a sponge, you have to squeeze it." Because the roots do not squeeze against the particles of earth they do not get it in sufficient quantities to build up a plant and fruit buds also. Accordingly the buds are not formed.

As to using the runners from such plants, that is a disputed question. I should not hesitate a minute to use them once. I presume Mr. Kellogg would say that to use them would tend to develop in the plant the "vine habit." I am inclined to believe he is right. On that account I should not advise one to use such plants year after year, but

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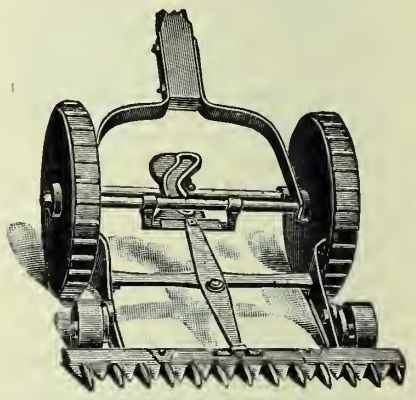
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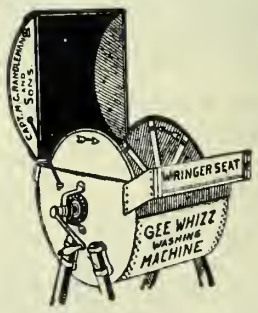

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I have been asked to say something about fertilizers. I must confess I do not like to do it, first, because I don't know enough about the subject, and second, because I do not believe my views are orthodox, and I do not desire to lead anybody astray. Nearly every agricultural paper I read sings the praises of the farmer who lets nothing go to waste on his farm. One man has built up a splendid manure pile by carrying to it everything that has any value either as a fertilizer or as an absorbent. The mystery to me is where he finds any time for farm work after he has done this and the forty other things he is told to do if he would be a good farmer. I don't like to see men let good manure run into a creek or otherwise waste it, but I believe that time has value as well as other things and that the value of time is often left out of consideration. It is to be expected that a man will utilize the manure made on his farm. If he has idle time in the winter or wants to keep a hired man busy then so as to have him for the busy season, he may find it advisable to buy stable manure if he can get it at a reasonable price and does not have to haul it too far. But I believe that in the future we shall find that the economical way to keep up the supply of humus and nitrogen will be by means of leguminous crops plowed under, while the potash and phosphoric acid will be furnished by commercial fertilizers.

For strawberries I prefer the ground that has already been made rich for previous crops. If this has not been done, a good way is to haul on during the winter any stable manure that is to be used, then rake off the litter in the spring. Wood ashes may be applied before the ground is plowed. Forty bushels to the acre broadcast is, I believe, as much as should be used. I am aware that some good growers advise using twice that amount, but I think that under such excessive applications the plants will in time be affected by the lime contained in the ashes. Sandy land should receive applications of ashes more frequently than heavier land, as the potash leaches out of such land rapidly. Indeed, many heavy soils have enough potash. Most writers advise the use of bone meal. Where a man owns his land and desires to make investments for the future in the form of fertilizers, bone meal is good, but, unless it is very fine, its action is slow. I prefer the use of "treated" fertilizers, provided they are well prepared and have not a lot of free acid. We generally use a potato fertilizer. After the plants are set, we have it scattered around each one, but not on it. It is done by hand, at the rate of a small handful to each plant. One will make the application heavy or light as he pleases, but, if he desires to use much, it is better to apply it at different times. Five hundred pounds to the acre is enough to put on at once. The fertilizer, being acid treated, is readily soluble and the rains carry it down to the roots of the plants. By using it this way very little is wasted between the rows. Untreated fertilizers may be used the same way, but their action is slower, as they have to rot in the ground before they become available. If they get in contact with the roots while they are rotting they are likely to "burn" the plants so they will die. Some of them, like ground tankage, are very nitrogenous, and in a season such as we are having here with heavy rains three or four times a week, making impossible to get on the ground to give as much cultivation as should be given, a growth of weeds is likely to come that will swamp the crop. Enough commercial fertilizer having been used to get a good growth during the summer, the best way to use stable manure to benefit the crop next year is to use it for winter covering. I like rough or rotten manure for that purpose better than anything else.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

The pupils at Briarcliff, N. Y., last year in demonstrating grass culture, found that one piece of land where no fertilizer was used gave a yield of hay worth $15.30 per acre. Another, with 142 pounds of nitrate of soda applied at a cost of $2.62 yielded $28.80 per acre, making a gain of $10.88 on an investment of $2.62.

J. H. Hale says the Georgia peach crop has been harvested. In parts of the state there will be no fruit, although in the Hale orchards, at Fort Valley, the crop will be extra fine.

Meeting of the American Association of Nurserymen

THE annual meeting of the American Association of Nurserymen which was held at Milwaukee, June 11-13, was the best attended and the most successful the organization has yet held. The attendance was not only very large, but every one had had a splendid season, and every member was in good spirits. The outlook for the next season is very bright, and it is predicted that trade will be even heavier that during the season just past. Prices of stock will rule about the same as during the present season.

The convention next year will be held at Detroit, Chas. E. Greening having waged a succesful campaign this year. Officers elected for the ensuing year are: President, Chas. J. Ilgenfritz, Monroe, Mich.; vice-resident, D. S. Lake, Shenandoah, Iowa; secretary, George C. Seager, Rochester, N. Y.; treasurer, Chas. L. Yates, Rochester, N. Y.; executive committee, Wm. Pitkin, Rochester, N. Y.; A. L. Brooke, North Topeka, Kan.; Peter Youngers, Geneva, Neb.; N. W. Hale, Knoxville, Tenn.

Mayor Rose welcomed the members of the association in a very happy speech, to which N. H. Albaugh responded.

In his annual address President Berckmans made a number of suggestions along lines which are of general interest. He cautioned nurserymen that they should make every effort to send out stock which was absolutely true to name, and in order to do this it will be necessary for each firm to have a test orchard, from which to get buds and scions every few years, so that there will be no trouble in knowing exactly what varieties are being propagated. Too many nurserymen depend on cutting buds and scions from nursery rows, he said. Not only should this precaution of selecting scions from bearing trees be taken, but the plan which has been adopted by Thomas Meehan & Sons of Philadelphia, can well be followed by all nurserymen. This firm has established a school for its employes, where they are instructed in different branches of nursery work, and where discussions between employes and employers in regard to the best methods, etc. In conclusion, the president recommended to the members to be not afraid to test new varieties. Many will prove worthless, it is true, but some will be valuable, and there should be careful watch kept for all such.

During the convention there was a number of address by prominent members of the association. N. H. Albaugh of Ohio talked on a variety of subjects under one head. He told of the charges which have been made against nurserymen so often, that they are not truthful, etc, and said he had found them as reliable as any class of people with whom he had ever done business. In a humorous fashion he told of the trials which nurserymen have had to endure.

"We have had pests of all kinds—diseases, blight and bugs but the greatest of these is 'humbug.' Many of the pests which are now so well advertised have been with us for a long time, and they are now being resurrected and magnified many times. The woolly aphis is heralded in some sections as a new pest, and yet I have it from a lineal descendant of the ancient navigator that this insect was represented by a male and female in the ark.

"But with all he has to contend with, the nurseryman has done pretty well. We are coming up in the world. It used to be fashionable to make a scapegoat of the nursery agent, and to load him down with all kinds of abuse. Yet we now have a tree agent as a member of the President's cabinet. See how they have welcomed Secretary Shaw, and placed him in charge of the treasury. Think of trusting the much abused tree agent with all that money. We are coming up in the world, my friends."

Professor L. H. Bailey talked on the subject of "The Nurseryman's Obligation to the Fruit-Grower," and his address was well received. We present it in full in this issue.

F. W. Taylor, acting chief of horticulture, of the St. Louis exposition, addressed the convention on the subject of "Horticulture at the Exposition," in which he told of the work which nurserymen will be asked to do in connection with the great show. He confined his remarks solely to the planting of trees, shrubs, etc., on the exposition grounds, for the matter of fruit displays will more properly be brought before the various horticultural societies. Mr. Taylor said a larger area will be available for planting at St. Louis than has ever before been at the disposal of nurserymen. In the matter of exhibiting trees of various kinds the nurserymen should surpass all previous efforts.

"Part of the grounds will be ready for planting next fall," said Mr. Taylor, "and we have assurance that practically every part of the space allotted for this purpose will be available early in the spring of 1903, so that even in the case of the last-planted shrubs and trees they will have an opportunity to grow for a year before the exposition opens. It will be possible to plant even large trees which shall bear fruit in 1904, if large specimens are selected and the work is carefully done. At an exposition in Berlin in 1896 I saw trees full of fruit in all

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had been planted that spring. How stages of growth, and yet those trees much better showing should be made where this planting can be made eighteen months before.

"Of course small fruits can be planted next spring and be in full fruiting during the exposition. It is intended to have grapes of various kinds planted, and thus show not only the different varieties in fruiting, but also to train them by the different systems, and show how they are pruned and trained according to different methods.

"The exposition should show some really good samples of American gardening which have never been shown at any previous exposition. At Chicago the Japanese and other nations had specimens of their style of gardening, but there was really little planting by Americans which could be accepted as representing our ideas of landscape effects. This should be changed at St. Louis, and it may be accepted as a fact that other nations will make a good showing there. One nation has asked for eight acres of space in which to show horticultural planting around its building, and others will do equally as well."

On the last day of the convention Messrs. Brooke and Willis of Kansas addressed the convention on subjects of interest to the members.

A resolution was passed endorsing the St. Louis Exposition and pledging the support of the members of the association to the work of making the horticultural features the best the world has ever seen.

The legislative committee reported the robability of Congress passing a bill which meets the approval of the association, in regard to the inspection of nursery stock. This bill provides that nursery stock shall be admitted into any state in the union when it is accompanied by a certificate to the effect that it was inspected by an authorized inspector of the United States government in the state in which the shipment originated. This bill, if passed, will put the inspection of nurseries and nursery stock in charge of inspectors who shall be appointed by the federal government, instead of being left to the states, as is done at present. When stock is certified by one of these inspectors as being free from disease or insects, it is to be admitted into other states of the union, just as our packing house products are admitted into foreign countries on certificates of our inspectors. Resolutions were passed favoring the passage of this bill, and the members were urged to write their representatives in Congress asking their support of the measure. This bill, which is House Bill No. 10,999, seems fair to both nurseryman and planter, and has met with no opposition save from some growers on the Pacific Coast, who do not want Eastern-grown stock admitted to that section under any circumstances.

On Thursday afternoon the visitors were taken on a trolley ride over the city by the Business Men's League, but rain seriously interferred with the program. Milwaukee is a delightful city, and certainly did herself proud in looking after the visiting nurserymen and their friends.

The Nurseryman's Obligation to the Fruit Grower

By PROF. L. H. BAILEY

At the late meeting of the American Association of Nurserymen Professor L. H. Bailey of Cornell University addressed the members on lines in which they are interested, the subject assigned him being "The Nurserymen's Obligation to the Fruit-Grower." The Western Fruit-Grower is pleased to be able to present this address in full, from stenographic notes, knowing it will be of interest to all our readers. The speaker said:

I feel as if I owe this society a great debt of gratitude; I think it is the one society in this country which has asked me to speak before it more than once. This, I fancy, is due to the fact that the society meets every year at a different place, and has, so to speak, a different audience every time.

I want to say to you as nurserymen, that I believe that we must come into a larger field, to a larger point of view in regard to some of our discussions; that we must consider that we are first of all men and citizens, that we have to do our share in the great problems of building up the country, whether in politics, or in education, or the improvement of the towns and cities in which we live. I am wondering, therefore, whether it is worth the while for me to review some of the things which it seems to me the nurseryman must consider in the future. The thought which must lie back of all his efforts must ever be that he is primarily a man among men, a citizen—"A man's a man for a' that."

The other day a professor in Cornell University who teaches one of the ancient languages, said to me that he was sorry that on the campus of the great university there was a building devoted to the dairy interests. I asked, "Does not the architecture of the building suit you?" He replied, "Yes, the architecture is good. It is one of the finest buildings on the grounds. The general mass of it is pleasing and the color scheme is good." I said, "Then what is the difficulty with it?" "It does not seem to me," he replied, "that a building devoted to milk has any business on the campus of a great university." I replied to him, "My dear sir, it is a part of my mission in life to convert you from that opinion." "You will have to argue a long time and argue hard before I would ever give up that position," he said. I replied that I should not argue with him, but merely convert him. How might we proceed with a problem of that kind? Not by interesting him in the theory of husbandry, nor in agriculture or the nursery business, or any one specific line of human endeavor, but appeal to him that every man, no matter what he does, is a man; every man should be taught and educated and elevated, and should be brought into sympathy and actual contact with the things with which he has to do; his mind must be opened. You open a man's mind by doing what? By teaching him Greek, mathematics, history, plants, zoology, milk and butter; and if the teaching is well done, if the subject is broad, and if the man is made to feel that he is developing himself from the human point of view, any subject is worth its place in a university curriculum.

We have long since come to feel, I hope, that it is not so much the subject the man studies, as it is the teacher he meets, for the good teacher will fire his youthful enthusiasm, will give him a new point of view on life and will send him out with the working purpose of making a man of himself. The study of dairy business will help him to make a man of himself, just as well as the study of Greek.

I would not have a man taught the dairy business or the nursery business alone; it makes him a narrow man. I would not have a man taught history or Greek alone; it makes him a narrow man. I would have a variety of things taught, but let him concentrate on those things which are of special interest from his point of view, and which he can follow as a pursuit, or with personal enthusiasm.

I would like to have time to speak of the Evolution of the Nurseeryman. Every year when I come to these meetings it seems to me that I note a broader point of view. I note a greater diversity of interests. You are taking more interest in a greater number of things in the country at large, more interest in books and periodicals, and more in all the discussions which come before you. Of the trade organizations which I meet, it seems to me that this Association of American Nurserymen is noteworthy in the fact that it does not confine itself to trade interests, but takes on that larger and broader field of horticulture, which after all lies at the very foundation of its activity and its success.

The nursery business as we know it is only a generation old; only about fifty or sixty in most parts of the country. That is evidenced by the fact that we have almost no literature of the nursery business, until within the last generation. Nearly all the writing which has to do with the nursery business is founded on the old country business, on the small practice of intense or more special system. There is scarcely a book which has the broad continental view point of the American nurseryman. I can remember very well when there was opposition among nurserymen to a trade paper, but you have all come to believe that a trade paper is a necessity. You have all come to believe, also, that nursery stock must be grown, not only because it is nursery stock and brings you in a revenue, but because also it is going to do some good to the fellow who buys it, and thereby is going to spread your influence and your trade. It is going to make you feel good in your hearts as well as your pocketbooks. And I do not believe there is any body of men in the country that has higher ideals in regard to their calling than the American nurserymen, and the old idea that nurserymen and tree agents were born to fleece the people has passed away.

I was very much impressed by one of your own members saying to me in the lobby last night that he was doing well and he was selling nursery stock, and he was making some money. I said, "You ought to be happy under those circumstances." He said, "Yes, but that is not all; the main thing is, I am feeling good in my heart and am trying to do something for humankind in general."

We have come out into a large field of continental effort. We are growing trees to spread over all the country, and nearly all of us are growing trees of the same grade; we are growing peach trees of about the same kind, and apple trees of about the same kind, until we have a sort of horizontal continuity of effort. I believe that the time is coming when we will specialize our interests, when we will come nearer to the old world type of nursery growing. We will grow special plants for special men, and very largely in the region in which we live. If you were to go into the old world nurseries, as many of you have, you will notice that the trees are not necessarily trained the same way the whole length of the row; one tree is trained one way, the second another way, depending on the aptitude of the tree for that particular kind of training. When one asks for a special kind of tree, he picks out this and that tree, whichever corresponds to that man's ideal. Our ideal is to grow the whole nursery row, one plant just as near the duplicate of the other as possible; it is necessary at the present time in our growing country, but the time will come when we will find a greater diversity of interests to be necessary. This will lead to specialization.

I want to drop a word in regard to the temper of the horticultural or agricultural teachers of the country. Nearly every science starts out upon the postulate of exactness; that is to say, when a science is born and its literature comes into being, nearly everything is exact, cut and dried,

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and there are rules and recipes. The old botanies are all cut and dried and everything arranged with almost mathematical exactness and in true systematic order. The science of agriculture was born of chemistry, and the old fundamental agricultural science is agricultural chemistry which strives to analyze the plant and the soil, to find the needs of the one and the deficiency of the other, and then by means of some chemical compound to satisfy that need. We are now outgrowing that old formal idea of agriculture,—that we can put something on the soil that will make up for a deficiency that has been created, and which will be a penace for all kinds of agricultural sins and ignorance.

It was my privilege a few weeks ago, while down South, to address an audience of five hundred negroes. I was introduced as one who knew something about bone phosphate. I replied that the only bone phosphate that I think worth much of anything is the bone in a man's arm. It represents the effort that a man puts into his land.

Another fruit of the evolution of agricultural science is that which has to do with the feeding standards for cattle. The German standards which have been adopted consist in a compound ration founded largely upon a theoretical basis. This basis is extremely useful in our experimental and practical work, but it must not be accepted as an invariable rule. We have now come to feel that we must compound a ration which satisfies the individual animal's needs.

So we are coming into an era of individualism in agriculture and farming. We no longer believe that because nursery lands will not grow two or three crops of trees in succession, that therefore they lack seriously in plant food. They may fail to respond because their physical constitution is impaired; because of lack of humus; they may lack because of some difficulty in the tillage; they lack, fundamentally, because they are not given to a rational system of rotation. The shorter the rotation, the better it is for the land, as a rule. The nurseryman's rotation is a long one, with trees four or five years on the soil; and then if you follow with another crop that occupies the soil for another four or five years, the rotation is much too long; and this is fundamentally the reason that treed lands cannot grow trees so well. It is not actually because you pump out of it all the stored plant food.

Our spraying ideals have also been changed. There is a breaking away from the formal, cut-and-dried, black-and-white receipes. A man writes to an experimental station and asks, "How shall I make Bordeaux mixture?" And he receives the formula, which says to put in just so much of one ingredient and so much of another. But you go into the regions in which the largest orchards are and you will find that the men who use tons of copper sulphate may scarcely remember the exact old formula of Bordeaux mixture. He varies the mixture to suit his needs. A man grows away from uniform, distinct, cut and dried scientific formulas in all agricultural practice. We are going to spray more in the future, and we are going to spray less. We will spray more, because more insects will come and our horticultural area will increase; we are going to spray less because we will depend more and more upon alternation, good tillage and good management, and on growing those things that are least subject to the difficulties or disease.

On what kind of stocks do you grow cherries? Theoretically the Mazzard stock is best; practically you grow on Mahaleb. The Mazzard stock is subject to disease, and while by continuous spraying you can grow cherries on it, it does not pay from an economical standpoint. So as a matter of economy you are forced to grow largely on the other stock, although you know that a scientific formula applied to the Mazzard is capable of saving it from disease. We have got away form the old idea that

> An agricultural physician
> With an agricultural pill,
> Or an agricultural nostrum,
> To cure an agricultural ill.

I have a word in respect to novelties. I believe in them. The effort of the nursery business has been to secure novelties. Every plant which is now old and established was once a novelty. I do not deprecate the introduction of novelties; the more the better. I do not believe we will ever have the all-round perfect variety. We are specializing in varieties, one being best for one thing and another better for some other condition or use.

I am wondering whether the time has not come when we need to recast our thoughts and ideals somewhat in this direction. Has not the time come to take up some of the good old-fashioned things and begin to push them for all they are worth? I come to this opinion with some editorial and writing experience, and I find that those things which touch the hearts of the people most are those that are known best; they are the good old things of the grandmother's garden, the old pinks and hollyhocks and phloxes and their kind. Often they are very much improved over the old things, but they bring back the old memories. I wonder whether there is not a chance for the development of our nursery business in the line of trying to bring the good old plants and to make them so cheap and good that everybody can have them without needing the skill that is required for the perfection of the many and recent novelties. In other words, I wonder whether it is not better to have one variety in plenty and to have that variety well grown, than to have one hundred varieties represented by labels.

Nurserymen must become the educators of the people. The nurseryman's work stands for art. Plants stand for the esthetic. We grow fruit trees for the money there is in their product, but a large part of the nurseryman's business is not in fruit, but in ornamental trees and shrubs, and we grow these for their art interest. I wonder whether it has ever occurred to you that the catalogues of the country have not done justice to the subjects which they describe? I wonder whether the old type of nursery catalogue is not doomed? and if every man who has a retal business and publishes a retail catalogue is not bound to issue catalogues which are artistic and which are educators of the people? You should have cuts that, so far as possible, you can control, and that will give your publication an individuality. Certainly this has been the history of journalism during the past few years; no journal now would think it could use cuts that every other journal uses. It would want something which is special and individual, which belongs to it alone, and which presents the subject from an artistic point of view. I do not know of any body of men that stands more for the artistic element in the country life than the nurserymen. I believe that a nurseryman's publication which is made for the retail trade should be one to carry artistic ideals to the purchaser's mind, and to give instruction in the everyday care of common things.

I have said that nurserymen are, or should be, concerned with all the great movements of the day. I want to say a word about abandoned farms, because I believe it is a subject particularly germane to the nurseryman. There are abandoned farms all over the country. They are owned by somebody, to be sure; the state does not own them, but the original owners have passed away. Whatever the causes may be, abandonment of farms is not always to be deplored. I recall some few years ago looking for a farm to buy. I was interested in farms as a biological problem, much as a botanist is interested in a plant, or a zoologist in an animal, as a thing which has a life history. A mudwasp builds a nest and lays its eggs and the young come forth; after a while the generation passes away; the old nest is torn off the rafter by some storm; only the mark on the rafter tells that here was a nest. It is a biological problem, a scene of life. Human beings are only larger insects. The farm that I finally bought was one that had run its course. The people told me that down there was where the first house had stood, and yonder was an old well filled up a generation ago, and beyond was the old cemetery. In this old burying ground I found tombstones with inscriptions seventy-five years old; and in the cellar I found some of the old tombstones which had been used for shelves for eggs and butter. Now that is a life problem. It is a fit subject for a biological study. They had planted an apple orchard in which the trees grew to a foot and more in diameter, but every tree had passed away. I found the old sap-evaporating pan two-feet below the surface of the ground. The place has had its history, round after round, and now I come to the scene; perhaps after a hundred years the old farm will again be abandoned, and a new scene of life be resumed. The abandoned farm is almost a necessity. I have seen them in the mountains; I have seen them in California, in New York, Nova Scotia and Dakota. In time some of these farms will be taken up. Great economical agencies will drive the people to the farm as it drives them now to the city. I do not worry for the future, for a great economical problem is working out. This concentration of the people is part of the movement of the epoch in which we live, but the movement back to the country must be worked out with patience by somebody. These great economical readjustments will come, but somebody has got to be behind them, and the better that work is done, the better will be the results.

What are the uses to which abandoned farms can be put? Leaving out summer residences, there are three great uses: First, grazing; second, forestry; and, third, apple growing. The two last are directly in the sphere of the nurseryman. You can buy lands in New England today, which are tip-top apple lands—distant from the city to be sure—for all the way from $3 to $20 an acre. You can buy good apple lands by the hundreds of acres in many parts of New York state for from $10 to $30. You cannot afford to take the risk on these hill lands of putting out peaches and plums. The lands are too far away from town for that, or for grapes and other special crops. I find a general revival of feeling in New York state that one of the uses to which they are adapted is the growing of apples. Our knowledge of fruit-growing now has taken away the risk of apple growing. Years ago apples were put in as a matter of guess; today we put out apple orchards as a matter of profit, knowing that if they are well cared for the future is secure. I know of a person in Western New York, who is not primarily an orchardist, who makes it a business to rent apple orchards for a period of ten or twelve years, reserving the privilege of doing what he wishes with the orchard, and taking for his pay the crops that he gets. He plows, tills, prunes, sprays and takes care of them, and expects within ten years to receive a profit out of these apple orchards.

I should not expect to till all these old hill lands for apple orchards. I know of one man in eastern New York who is going into the scheme of reviving those old hills by putting in apple orchards, and he plows strips ten or fifteen feet wide, on which he sets the trees, leaving the remainder in sod to lessen labor and to prevent washing.

It is a significant fact that New York nurserymen are growing greater quantities of apple trees than they are selling in the state. They send them West. The West in time is going to fill up; there are nurserymen in the West also. We must look for an outlet for our nursery stock. I believe that the American Association of Nurserymen ought to have a bureau of publicity which will bring the attention of people to the necessity of reviving some of these old lands of the east. Every nurseryman should try to develop the interests with which he is concerned right in his own locality. Not that I think he could not grow stock for all the world if he wishes to, but he should have an eye out for the community in which he lives. I look at this from the fruit-grower's point of view. Under the instructions of the Downings, Yeomanses and many others, western New York came to be the great apple-growing region of the United States. But gradually the middle West has been filing with apple orchards. We are not planting apple orchards in New York extensively. We are planting peaches and plums and so on, but I believe that for the ordinary man there is less risk in the apple than there is in the other kinds of fruits, and I look for the recuperation of old farms along this line.

Another word in regard to the matter of schools. It has been my privilege to be interested during the last few years in the public school question. The nurserymen have a very close touch with the school interests, because the nurseryman's business is one of training. I want every nurseryman to be interested in the improvement of public school grounds. We have in the university which I represent a bureau of extension of teaching, and one of the objects is to interest the children in the growing of something. We have interested the children this year in organizing garden clubs. They commenced last year, and at this time we have in New York about 15,000 children organized in garden clubs, every one of whom is planting something to grow. Some of the things may not grow, but he is making the effort. We want to improve the school grounds in New York; we appeal to the teachers, the commissioners, those in authority, but we have found that one of the best ways to interest them is to get the children awakened. We aim to get the sentiment established.

Giving prizes for the improvement of school grounds is a most excellent thing, but the prizes usually do not appeal to the masses. The first thing to do is to try to enthuse the children with the idea that they must tidy up; have them pick up the old wood, and all the rubbish about the place, and straighten out the fence if they do not take it down, and see that things are merely kept clean. If you have just that idea started for one year it is really making considerable progress. I sometimes think that we look for too great things and thereby miss the little ones, which, after all, in the cumulative effect, are the important ones. I wish the nurserymen were all interested in this subject, because the rural school problem is one of the important problems of the day. One-third of our people are on farms, and I suppose one-third always will be. They are educated in country schools. You as nurserymen must be interested in the improvement of the public school. You must begin with the children, to appeal to the individual's life, to awaken desires in the child which means something to him all his life. Not that we should forego the teachings of mathematics and so on, but we should teach the child to love the common things with which he comes in contact. In one of the schools of New York of about forty-five children, I asked all those who lived on farms to raise their hands, and all hands but one were raised; and then I asked all those who wanted to live on farms to raise their hands, and only that one hand went up! Those children are too young to be influenced by bushels of potatoes, or by the price of wheat, or by the price of land; I fancy that they are influenced by the character of their home life, and I am sure that better flowers in front of their home yard have more influence in keeping them on the farm, than twenty more bushels of potatoes on every acre of the place. I should like to have them come in contact with the things with which they live. If I have any mission in life, and any one central purpose, it is the spiritualization of agriculture.

Now, how shall we do all this work? Each one in his proper sphere do a little here and a little there. I want to tell you in conclusion that there are only two epochs and two efforts in everything that we do in life, the first is to begin, and the second is to get done.

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Poultry Department

By W. P. LAIRD

Your Layer During July.—The busy season with laying hens is drawing to a close, and they will soon begin to think of their fall and winter suits. They are already exhausted and reduced in flesh from laying and the period of moulting upon which they are about to enter is still more trying. It is wise, therefore,to look to their interest at this season. During the month of August fatten and dress any of your two year old birds. Those that you keep over should be separated from the males and be allowed to rest up. If your birds are confined in limited yards, see that they have all that nature requires. But if possible let the birds have free range and fresh water. They should never be allowed to resort to stagnant pools of water in the barn yard. About all the tonic fowls need at this season of the year a little tincture of iron put in the drinking fountains. Of course it is necessary with this, in order to preserve the health of the flock, that they have clean airy houses, and that the buildings be kept free from vermin. Any fowl that cannot, with the proper care and feed, pass through its moulting is not fit to breed from.

How Many Varieties?—Look here, young man, did you say you were going into the "fancy poultry business?" If we understood you right, that was the substance of your remarks. "A thousand or two of fowls of all the leading varieties, especially all the rare ones, that are to be found in the country."

Now, before you start just step this way and let us give you a bit of advice. Probably you will not heed it now, but years hence maybe you will remember our good intentions and will then wish you had done as we suggested.

Yes, we will write these few lines with a perfect understanding that advice is the hardest thing under the sun to take unless it runs in the channel of ones own fancy and that experience, while about the dearest school in the world, is also the only one that can be said to real thorough in its training. And this is just as true or poultry raising as any other pursuit.

Th first attack of the "hen-fever" is usually quite violent. It takes possession of the whole system but whether the victim ever recovers depends on the nature of the victim and his ability to mix medicine of sound reason with the seeds of his malady. For instance, the ardent fancier sees a large number of fancy fowls and his first impulse is that he would like some of each breed.

It is a foct that a fine pen of birds is a pretty sight and it is entirely in the line of human nature for the beholder to wish he had such a few of his own. And a great many times the impulse is carried out to an extent which looks ridiculous to the more experienced poultryman. The breeder who advertises a great many varieties, usually—not always—does little or nothing with any. He is very apt to be "closing out" or "reducing stock," offering special bargains at lower rates than successful breeders would think of in order to find purchasers. His fowls are seldom first class, his business never pays.

On the other hand, the men who make a national reputation as breeders are almost invariably those who make a specialty of their favorite breed, whatever that may be. They seldom handle more than one breed, but breeding this to its highest perfection and are with this breed able to win an enviable reputation wherever they ship stock and eggs.

As we have said before, our advice is to the beginner to commence slow, learn as you journey along, but if you have had ample experience buy a thousand birds if you wish that number and can afford them; but however many you buy get good ones and instead of trying all the varieties and breeds at the start, begin with not more than one or two, testing them thoroughly, aiming at the highest standard, and our word for it you will find little need and have little inclination either to add other varieties or to change from one to another, disappointed in all and satisfied with none.

Seasonable Notes—July should be a month of comparative leisure to the poultryman. To be sure, there is work to be done at all seasons but when the egg shipping and the bulk of the hatching is over the breeder feels relieved of the burden of care and anxiety. It is a good thing to look over the results of the season's work and also to look ahead and make arrangements for the fall work. The early chicks are now of a good age and their points of merit or demerit may be readily distinguished by the practical man. By all means separate the culls now from the ones that have good points and send them (culls) to market; they are in good demand at fair prices. Cull them closely, allow no inferior specimens to grace your yards. This is one point in which the average farmer fails—allowing too many culls to remain among his breeding birds for the next season. Those remaining will be more valuable as breeders, both for yourself as well as to those customers to whom you may sell for the same purpose Reduce the size of your flock and take extra good care of those remaining.

Disease sometimes appears, especially during the hot summer months. It is well, therefore, to exert the greatest care, keeping an eye on your flock and should you have a sick fowl, separate it from the others at once. Of course if you breed any stock to sell you must let those who buy thoroughbred stock know you are in the market. There is a right way and a wrong way to do this. Those who take an interest in good stock always subcribe for a good fruit and poultry journal and buy from those who advertise in them.

Questions and Answers

Q. Will you please inform me which is supposed to be the most valuable, the Pekin or Aylesbury duck. A. The Pekin far excels all other varieties of the duck family. The Pekin is of a more creamy white plumage than the Aylesbury. The legs and beak of the Pekin are of a darker yellow and are preferable on that account also.

Q. Do you consider it best to allow ducklings access to running water as soon as hatched? A . A great many persons, in common with you, hold the idea that ducklings should go into water as soon as hatched. It all sounds very well but the cash returns are not near so practical. The truth is they are very tender bundles of down and animal life and it is advisable to keep them away from water (except of course pure aqua for drinking) for as long as ten weeks or so. In this way they avoid the chill that otherwise of necessity must occur, as their down is not water-proof until feathered.

Q. I have some Pekin ducks, bought for thoroughbred but since they have been laying their legs and bills are lighter in color. A. Do not think that this is a sign of impurity. Very often after hard laying the bills and legs of pure Pekins will be a shade lighter.

Q. I am just beginning the poultry business and want to know what stock is the best. A. If beginning the business would advise you to buy none but the best of stock of a reliable breeder, and with care your money will be well spent. There can be no greater mistake made than by buying inferior stock and expecting that a good progeny can be produced from them. The breed depends upon your choice. There are a number that are good.

Practical Pointers.

It is said that a hen in the course of a year will, when properly fed, lay from six to seven times her weight in eggs.

Apoplexy attacks grown ducks when they are allowed to get very fat. Allow ducks to roost on the ground and they will be troubled with leg weakness.

Do not give ducklings cold water to drink or it will cause cramps and instant death among them.

The duck family is an extremely voracious one. Ducklings will eat much and grow rapidly.

An advantage of canned eggs as a manufactured article is the facility for handling them when shipped to a great distance.

An active fowl is a healthy fowl, and a healthy fowl is always a profitable fowl.

In setting hens from now on be careful to sprinkle in their nests occasionally a good insect powder or tobacco dust.

Pale combs, wattles and faces is a sure sign of liver complaint in poultry. You should see that they get plenty of charcoal and grit, feeding more grain than mixed food.

If you contemplate erecting new buildings, now is the time to do it. By building at this time the lumber becomes thoroughly dry as well as the ground.

One who has the ability, the time, money and disposition to experiment had best apply them to those matters that are unsettled. It is a waste of time and money to find the "best breed" beyond a shadow of a doubt.

As warm weather begins it is best to feed less wet feed, feed mostly sound dry grain either whole or course ground.

Young chicks on ground that is reasonably dry will not be troubled with the gapes. The best plan is to make your coops with board floors, which will be another preventative.

The duck is liable to less disease, lays as many and large eggs as the hen and the ducklings grow twice as fast as chicks.

Poultry pays, so says your poultry friend. You perhaps doubt his word. Many have an idea that fowls positively do not pay. Do you know how much the food cost that you fed your fowls last year? Have you ever kept an account of your poultry? Do you know the number of eggs they gave you? If you can answer these questions in the affirmative then it is an easy matter to tell whether your birds paid you a profit or not.

The superiority of the Pekin duck over the numerous other varieties of the duck family for breeding and market purposes is unquestioned; their total sales as compared with all varieties is as 100 to 1; their desirability as a market duck is unquestioned. The thoroughbred Pekin has a long, finely-formed body, with deep keel, orange colored shanks and toes, deep blue eyes and pure white plumage and will weigh from 9½ to 10 pounds per pair at 9 weeks of age, when receiving the right feed and attention.

Everyone can make a success of incubators and brooders, but will you, is the important matter?

Let your little chicks roam in your garden until half grown, the amount of injurious insects they will destroy will surprise you.

The bulk of the breeding will have past before this goes to print, but take the best care of your setting hens, see that they have all that nature requires with an abundance of some good insect powder or tobacco dust. Do keep down the lice and let your birds have some comfort as they journey through life.

There is as much in the heat as the feed in rearing little chicks and ducklings. So many people fail to think of this when their chicks begin to droop and die. The death of thousands of little chicks is attributed to the feeding while the true status of affairs is the fluctuation of heat in the brooders—becoming too hot or too cold.

If your county fair is worthy of being patronized and sustained, exhibit your choice poultry, and thereby add interest to it. If it is a horse race and gambling den attachment you had best keep yourself and poultry at home.

An even balanced food ration is required to get a rapid and profitable growth. Too many poultrymen and farmers, too, neglect to give meat of any kind.

Gentleness certainly counts in the poultry yard as well as in the dairy.

It is bad policy to seize a hen by one leg or wing and roughly chuck her over into another pen just because your and her ideas do not agree.

Man's fancy may undergo changes in other fowls, but he who once learns to admire a guinea fowl is a devoted admirer for life. W. P. LAIRD.

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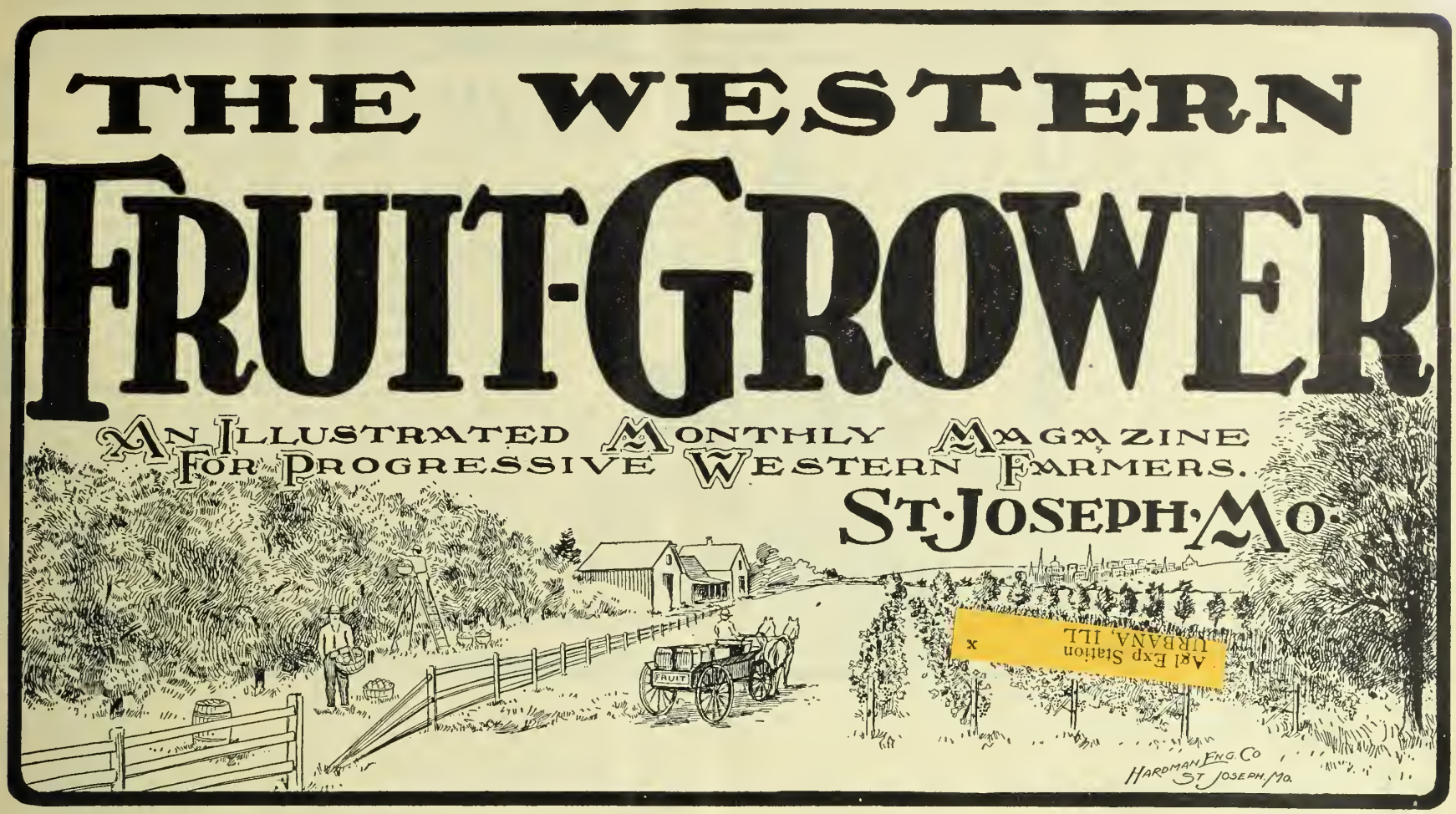
Volume Twelve AUGUST, 1902 Number Two



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The Bushel Box for Apples

RECENTLY a reader of the Western Fruit-Grower raised the question of sizes of apple boxes, claiming there should be uniformity in size, so that quotations of prices would be intelligible to everyone.

Whether or not it is advisable to pack apples in boxes was also discussed. Believing the subject to be important, the Fruit-Grower has written to a number of persons who have used the box, asking as to the size of box and results of its use. The subject is an important one, for if the mox is to be used as an apple package there should be a standard size adopted, so that the confusion which now exists in regard to other fruit packages can be avoided.

A number of the persons to whom we sent inquiries have replied, and we publish their reports herewith. We also present two illustrations showing fruit-packing scenes in orchards where boxes are used. One is the orchard of J H. Crowley, Rocky Ford, Colo. Mr. Cowley being shown as the man who is figuring just to the left of center of the picture. The other orchard is that of Olwell Bros., Central Point, Ore. which has been referred to before in the Fruit-rower. It is worthy of note in passing that both of these orchardists are thorough sprayers, for they believe that it pays to grow only first-class apples—it certainly does not pay to pack any other kind in boxes.

Before giving the views of growers, we wish to present the opinion of the consumer as to the value of the box as an apple package. There can be no question that consumers prefer the box to the barrel, for several reasons. In the first place, the average consumer has an idea of long-standing that in the middle of every apple barrel there are small, knotty, faulty apples. Whether justified or not, this idea exists, and many of the consumers are prejudiced against a barrel. Now, this danger is reduced to the minimum in the box, on account of the smaller package. Again, a barrel of apples is too much for the average city man, with no storage facilities, many times with not even a cellar, to buy at one time. Much of the fruit would decay before it could be used. This would not be the case, of course with the box, for the quantity of fruit would be reduced to a third of the contents of the barrel. The barrel is also hard to handle, while if apples are packed in boxes a purchaser can take it home on the street car. With first-class, sound apples packed in boxes, therefore, it may be assumed that the consumer will prefer the box. But of course he does not have to consider the cost of packages, or anything of that sort.

Among the handler of apples, we wrote B. Newhall, of F. Newhall & Sons, Chicago. This firm has packed in boxes extensively, and Mr. Newhall is qualified to give an opinion. He says:

"Size of box, we think, is 18½ inches in length and 11½ by 11½ sides and bottom, inside measurements. As a rule, we do not think as well of the boxes for fancy fruit as we did to start with. It has not done as well, comparatively, this year as the barrel has. Still, for some varieties, and at certain periods, the box has been well. and we would not wish to condemn its use at all."

C. H. Williamson, Quincy, Ill., referred us to his address before the Illinois State Horticultural Society two years ago, when he indorsed the box for strictly fancy fruit.

F. H. Speakman, Neosho, Mo., packed in boxes last year, and says: "The box proved a very satisfactory package last year for choice fruit. Our boxes were made with two head pieces 10½ by 11½ inches five-eighths inches thick, two pieces (for sides) 9½ by 19¼ inches, and two pieces (for bottom and top) 11 by 19¼ inches, sides and bottom and top stuff one-fourth inch in thickness. These boxes were made of dressed cottonwood by the Phil R. Toll Box Co., Kansas City, Mo."

J. H. Crowley, Rocky Ford, Colo., gives his experience as follows:

The box we used and will use this year is the standard Colorado or Oregon box, made of clear pine. It is 11¼ inches deep, 11¾ inches wide, 18 inches long, inside measurements; made of two ends 11¼ by 11¾ by 13-16 inches thick; two sides 19¾ by 11¼ by ¼ inches thick; two bottom boards 19¾ by 5½ by 5½ by ¼ inches thick; two top boards 19¾ by 5½ by ¼ inches; two end cleats ½ by 13-16 by 11¼ long. We use 5-penny cement box nails. In packing we put the top and cleats on, face with double faces then fill in full; lay bottom boards on, put in press and nail bottom, turn box over and stamp name and variety on end to show face side up. This, if filled right, should bulge middle of top and bottom one-half inch each. For fancy apples we pack in layers, four layers and four tiers. In storing or hauling, loading on cars, boxes should lay on side. If shipped far should be cleated each end of each tier of boxes with three-fourths inch cleats nailed. This, or a box very near it, is the coming package. This holds, when well packed, fifty-one pounds of Winesap or such apples, or forty-four pounds of Ben Davis, or just a little more than one bushel. For packing in layers I like box 11¼ by 11¼ so the four layers fill the same each way. We line these boxes with paper. For red apples use white paper, for yellow or white apples, pink paper. I will send you photo of apples being packed at Fairview last fall. Our people like the box for all fancy fruit, but they want the bushel box not the California box. For small or No. 2 apples, the barrel is best."

W. S. Offner, an experienced handler of apples, of Walla Walla Wash., gives his experience with the box as follows:

"Now as to size of boxes we have had all kinds of trouble. We used for several years what was known as the Washington box, size 11½x12x18½ in the clear, and we think to-day this is the proper size for an apple box

PACKING APPLES IN ORCHARD OF OLWELL BROS., CENTRAL POINT, OREGON.

as it is nearer the bushel box than any box we have had yet, and while it does not measure the number of cubic inches, it weighs out as near as can be, as it makes about fifty pounds for the average apple; some such as Ben Davis weighs about forty-five pounds, from that to 50 pounds, and this is as near a bushel box as you can get, we think. But we have had this matter up for the last three years in what is known as the Northwestern Fruit-Growers' Association, embracing the states of Washington, Oregon, Idaho, Montana and British Columbia. Three years ago this box matter was brought up at our annual meet at Spokane, and the writer was on a committee to arrange size of boxes, and we maintained this box for apples. Two years ago it was brought up again, and the president of the meeting was opposed to this box, and he appointed a committee that was in favor of a smaller box, and they adopted the following two-sized boxes, one called standard, 10½x11½x18 inches in the clear, and the other size what is called the special or California size, is 10x11x20 in the clear. Now you have the three sizes of boxes. But we will be forced, I am afraid, to abandon the old box (and I think the best one) as the other has been adopted by our Northwestern Fruit-Growers Association, and the most of growers favor it, and it is all for the reason that they can pack a smaller apple and have it run what is called a four-tier or five-tier apple. Some people want to make a five-tier apple pack out a four-tier, and can do so using the narrow box. Even our mills have agreed to not cut out the old box, and will not do so unless we pay them extra for it, and the growers want an extra price for the apples we put in them, so it becomes a question if we can sell the apples for enough more to make the difference. As I said, my preference is and has been for our old style box (11½x12x18½), but think we will have to abandon it, for the box known as the standard, which I think will be mostly used."

From these reports it will be seen that there is urgent need for some agreement as to the sizes of boxes to be used. Neither of the dimensions given correspond with the size used by any of the other growers. In some cases there is little difference in the capacity of the boxes in cubic inches, but in buying apples in large quantities it would be almost necessary for the buyer to investigate and see what size of box was used. The box will undoubtedly be more largely used for packing strictly first-class apples, and the sooner the movement to adopt a uniform size is started, the better the work can be done.

Now, a suggestion to apple growers, in conclusion: Why not pack fancy eating apples, as Jonathan, Grimes Golden, etc., in bushel or half bushel boxes for the best trade at holiday seasons? In every city there are a great many persons who prefer a good apple to an orange, and at the holiday season, from Thanksgiving to New Year's, there is a demand for this fruit. This will be just the season, too, for the varieties named. We have heard of an Iowa man who packs his Jonathans in half-bushel market baskets, and sells them at the holiday season, but he is the only one we know of who has tried it. Apples packed this way will meet the needs of many people, and we daresay a small local notice in city papers stating that such small packages for family trade are to be had will serve to close out the stock.

Your mid-summer orders will receive our prompt attention.

We have everything for hot weather.

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Thirty years of successful merchandising on a firm, substantial basis, employing clean, upright methods—the kind that insure positive reliability—a firm worthy of your patronage. We already enjoy the confidence of over half the people in your county but we want yours also. Ask your neighbors about us if you doubt our ability to serve you properly—you will be surprised to find how many customers we have in your vicinity. If we can please others we can please you.

PRELIMINARY ANNOUNCEMENT—Our new catalogue No. 71 will be ready about September 1st. Our buyers have scoured the markets of the world for honest, up-to-date goods, to quote in this catalogue, and it will be beyond doubt the finest catalogue ever issued by any mercantile firm. We want every reader of this paper to send for a copy. It will be sent, all charges paid, upon receipt of 15 cents—this amount only half pays the postage, but it is sufficient to show us that you are acting in good faith.

Applications may be sent in now, and we will forward the catalogue as soon as it is issued—about September 1st. Ask for catalogue No. 71, and enclose 15 cents in either stamps or coin. Why not do it now?

Montgomery Ward & Co., Chicago

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A Big Apple Yield.

A clipping from a Red Oak (Iowa), paper tells of the orchard of a Mr. Bradley, one of the big apple growers of Mills County, Iowa. This gentleman has 250 acres of apple trees just reaching their prime. The clipping referred to says Mr. Bradley expects to sell 20,000 to 30,000 barrels this season of very fine fruit. Fruit has been sprayed and is said to be remarkably free from insects or disease. Mills County has some splendid orchards, and the crop there this season is reported to be better than for many years.

PACKING APPLES IN ORCHARD OF J. H. CROWLEY, NEAR ROCKY FORD, COLORADO.

Hairy Vetch for Orchards.

The articles concerning hairy vetch as an orchard cover crop which were furnished the Fruit-Grower by Prof. Erwin of Iowa and J. H. Crowley of Colorado have awakened much interest among orchardists. Mr. Crowley sent us some photographs which showed the vetch in the orchard and the nitrogen nodules on the roots of the vetch, but, unfortunately, the engraver said neither would make a good cut, and we are unable to present them. However, the vetch in the orchard had made fully as good growth as was shown in July issue in orchard at Iowa experiment station. The roots of hairy vetch have the nitrogen nodules or warts, just as cow peas and clovers have, and the value of vetch because of this fact is evident from an examination of the roots. Mr. H. H. Griffin, field agent of the Colorado experiment station, has grown vetch for some time, and sends the following notes for benefit of our readers. He says:

"For some year I have been growing the hairy vetch in Colorado and New Mexico and noting its adaptability for various purposes. I have come to the conclusion that it will meet many requirements when once its value is generally understood.

"Some of the farmers of the Arkansas Valley have expressed a desire for a fertilizing plant that may be sown in the fall, after taking a crop from the land and make sufficient growth to turn under in the spring. The vetch meets this demand admirably. It will make growth in this valley in all but the severest part of the winter. I have secured good results from as late sowing as October first. In one instance the seed lay in the soil over winter and germinated with the first approach of spring.

"The hairy vetch will thrive on the lightest kind of sandy soils and will keep them from shifting with the spring winds. The roots are bountifully supplied with tubercles which, together with the decaying stems, add a vast amount of humus and fertility to the soil. If sown in early September it will produce a considerable growth to plow under in April or May or if allowed to ripen will do so in early July. It commences to bloom about the middle of May and for two months is a profusion of bloom. Bees frequent it in great numbers, seeming to do so to the exclusion of most other plants. Early fall sowing makes splendid pasture in April and May, and if the plant is started in summer will furnish pasture in February and March. Six-sevenths of an acre was sown to this seed August 11th, 1899, and by May 12th, 1900, it stood two feet high and in bloom. The seed was ripe the first week in July. The yield of straw was 3,000 pounds, the yield of seed 400 pounds. July 26th the same land was prepared by discing, and from the seed which scattered, a good stand was secured. This was allowed to grow until April, 1901, when it was plowed under and the land seeded to beets. The tops of the beets on vetch land grew rank and thrifty, having much of the appearance of beets on alfalfa land. The results show a heavier yield than was secured from the use of ten loads of manure per acre and 50 per cent increase over unfertilized land. Trials further show that the vetch may be sown with oats and cut with them for hay in July, and produce seed afterwards.

"This plant makes a splendid cover crop for orchards in the arid region; it is easily destroyed and in no sense will it become a nuisance. Our large farms are being cut up into small ones and the need of fertilization is apparent. The vetch may be sown in fall, turned under the following spring and the land occupied the remainder of the year with either Mexican beans or cow peas, a method that will rapidly restore fertility. The plant has a place in our agriculture either as a fertilizing plant, a cover crop for orchards, early bee forage, or early pasturage, especially for lambs and hogs."

We will add that everyone who has tried vetch, whom we have talked with, was well pleased. We shall be glad to hear from our readers who will try it this season.

TREES

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We offer a large and choice line of General Nursery Stock.

Special attention is called to the following:

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96 Varieties. Catalogue Free.

North Star Strawberry Plant Farms

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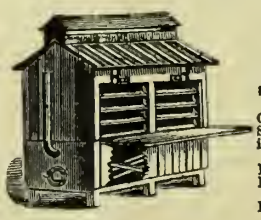
BILLINGS NURSERY

Billings, Mo., 20 miles southwest of Springfield; has a general line of all kinds of Nursery Stock. Apples a specialty. I have 20,000 Paynes Late Keeper, 1 year; 50,000 Soft Maple. I have a fine stock of 2-year Apple for the fall trade. My stock is true to name. G. W. TRIBBLE, Prop., Billings, Mo.



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D. STUTZMAN, Ligonier, Ind.

The Apple Crop

NOW is a critical time with apple growers, and the man who has a crop is naturally interested in the probable yield of the country. The Western Fruit-Grower has endeavored to get reports from different sections of the country where apples are grow commercially, to give an idea of the size of the crop. These reports have been published monthly, and have done much good, although we have not had the co-operation of the growers which the importance of the matter warranted. The Fruit-Grower will improve its system of reporting apple prospects, however, until it is indispensable to every man who wants to buy or sell apples. At the recent convention of the National Apple Shippers' Association the president recommended that the association form a crop-reporting bureau, to cover the entire country—but the reports are to be for only the members of the association, and are to be kept secret. This is all well from the standpoint of the buyers, but the growers should also have such a bureau, for the size of the crop generally is as important to the man who has apples to sell as it is to the one who wants to buy. We intend that the growers shall have such a report every month, and not be left in the dark. In this work we ask the co-operation of all our readers. If the growers will do their part, there need be no one left uninformed as to the size of the crop.

But to return to this year's yield. The conviction has been growing on us that the size of the crop is overestimated everywhere. We know this is so in some sections, and our advices are to the same effect in other districts. Buyers are talking of fruit as low as in 1896, when prices in the Middle West ranged about $1.25 per barrel. We hesitate to say what apples are to be worth this year, but it does seem as though they should be worth more than in 1896. There can not be as much fruit as was packed that season, and even if there were fully as much, the change in the condition of the country would warrant higher prices. In 1896 everything was dull and prices were low. Now, times are unusually prosperous, all products sell for good prices, and apples should be no exception. The people are in condition to pay much more for apples than they were in 1896, even if the crop were the same. They are paying more for everything else. Besides this, the exporting of apples is receiving more attention than formerly, and it is likely foreign markets will consume more of our apples if the price gets low. Another indication of the fact that higher prices will rule is found in the prices which have been paid for summer fruit. All kinds of fruits have sold well, showing the demand to be excellent. The shortage of small fruits for canning purposes, too, will make more of a demand for winter apples.

There is danger, however, that Western growers who received such extraordinary prices a year ago have their ideas of price entirely too high. It is a fact that apples are much more plentiful than in 1901 and prices will rule lower. In talking with prominent buyers they say they expect to get New York apples on board cars at $1.25 per barrel. They say they ought to get Western apples at $1 per barrel for the fruit, the buyer furnishing barrels and packing. We believe this price too low, by 50 cents per barrel Winter apples ought to be worth, and we believe are worth, 50 cents per bushel for No. 1 barreling stock, or $1.50 per barrel, buyer to pack and furnish barrels. Growers with whom we have talked believe this is none too high, for most of the fruit is of excellent quality. With danger of bitter rot striking the Southern orchards, with late broods of codling moth hard at work, with a chance for severe windstorms before packing time, and all other causes which can injure the apple crop, taken into consideration, we believe the price of $1 per barrel for the fruit is too low.

We hope to have full reports from our correspondents next month as to quantity of apples to be marketed in their vicinity, the price buyers are offering, and everything which will help the growers who have not sold their crops to form a fair idea of prices which should be received. Our report this month follows:

The following is the summary of reports as submitted to the meeting of the National Apple Shippers' Association at Buffalo. It will be noted that reports from Western states are much higher than even the most enthusiastic reporter on the ground will make:

"The Press Committee of the National Apple Shippers' Association reports the condition of the apple crop, August 1, 1902, for the United States and Canada on the basis of the large crops of 1897 for Ben Davis and Winesap section, and of 1900 for Baldwin, Greening and Spy section, both ideal crop years for respective sections. The large crop in each of the years named being offset by a correspondingly small crop in other sections. In estimating percentages we have taken into consideration the fact that the Central and Western States each year since 1897, have greatly increased in number of bearing trees, these percentages should not be compared with government and state crop estimates, which are figured on different basis, this report is based on percentages of prospective quantity of apples promised in comparison with two different years named. Present conditions would indicate largest yield in recent years. Percentage table—New York, 1902, 90 per cent. of 1900, quality poor to good; Pennsylvania, 100, fair to good; New Jersey, 100 (1900 being off year), good; Maryland, 25, poor to fair; Delaware, 40, fair; Ohio, 100 (1900 being off year), poor to good; Michigan, 100, poor to good; Maine, 75, fair to good; New Hampshire. 75, good; Massachusetts, 70, fair to good; Vermont, 65, fair to good; Connecticut. 70, fair to good; Rhode Island, 70, fair to good; Nova Scotia, 100 (1900 off year), poor to good; Ontario, 100, poor to good; Missouri, 50, good; Illinois, 80, good; Kansas, 65, good; West Virginia, 75 (1897 off year), poor to fair; Virgina, 75, poor to fair; Tennessee, 40, poor to fair; Kentucky, 40, poor to fair; Indiana, 50, poor to fair; Nebraska 65; good; Wisconsin, 50, poor; California, Oregon, Washington and Colorado abundant crops of good quality."

Western Fruit-Grower reports follow:

Mammoth Springs, Ark.—Apples promise 75 per cent of crop, with quality above average. No apples sold as yet. Weather dry and hot.—D. S. H.

Bentonville, Ark.—Have promise of 65 per cent of crop of apples, with quality fair. A little bitter rot and some damage from codling moth, but fruit is generally better quality than usual. Sweet Bough and Maiden Blush sold for $1.25 to $2.25 per barrel; perhaps 10,000 barrels have been shipped. The last report I sent gave estimate of crop for Benton County at 300,000 barrels, but the types had it 30,000 barrels. The former figure is correct.—I. B. L.

Rocky Ford, Colo.—Eighty per cent crop of apples, extra good quality. Wealthy, Maiden Blush and Cooper No. 1 sold for $1.50 per box.—J. H. C.

Grand Junction, Colo.—Ben Davis full crop, Shackelford full crop, Jonathan half crop, Rome Beauty fair crop, Mammoth Black Twig very light crop (trees too young.) All orchards here have lots of fruit and at Fruita, near here, there will be a great quantity also. At this time there is no wormy fruit worth mentioning.—F. H.

Batchtown, Ill.—Fifteen per cent of apples, of mostly good quality, though there is some bitter rot and some worms.—J. R. D.

Hamilton, Ill.—Three-fourths crop of apples, of No. 1 quality. Maiden Blush sold at 40 and 50 cents bushel. Winter apples smooth, fine and hanging on trees well.—H. D. B.

Jerseyville, Ill.—Apples promise 30 per cent of crop, No. 1 quality in sprayed orchards. No fruit sold yet, but from correspondence believe crop is overestimated. Do not believe there will be more good apples than in 1901.—W. E. C.

Savoy, Ill.—Only sprayed orchards count for anything here this year, and these promise about 75 per cent of crop. Quality good. Keswick, Codlin and Wealthy sold for $1 to $1.25 per bushel, and Maiden Blush will run some higher.—R. L. D.

Quincy, Ill.—Half crop of apples, of fair to excellent quality. Considerable loss from high winds, but are developing well and coloring nicely. Buyers offering $1 to $1.25 per barrel.—C. H. W

Dubois, Ill.—Half crop of apples here, fair quality. No fruit sold yet. Orchards are uneven, some with fruit, others bare.—A. A. H.

Griggsville, Ill.—Eighty per cent of crop of apples, of fine quality as a rule. Some large orchards injured by hail. Summer fruit sold at $1 per barrel. Hail and wind have caused damage in last week or two.—C. G. W.

Vincennes, Ind.—One-fourth crop of apples, fair to good quality. Few orchards have any fruit to mention. Sprayed trees over-loaded. —H. M. S. (This firm also writes: "The Illinois crop is over-estimated, as is Indiana. We have an idea that No. 1 and No. 2 apples, with greater percentage of No. 1, will be worth no less than $2 per barrel f.o.b. picking time." This is in line with price the Fruit-Grower suggested, namely, $1.50 per barrel for No. 1 fruit, buyer to furnish barrel and pack.—Ed.)

Lafayette, Ind.—Indiana promises one-fourth crop of apples of fair quality.—J. T.

Glenwood, Iowa.—Half crop of apples here, and quality better than I ever saw. Fruit is selling for fall pack at $1.50 to $1.75 per barrel. Think this will be a good year to pack apples, as all will mature and ought to keep well.—J. P. J.

Parker, Kan.—Half crop of apples, very smooth, large and free from worms. No fruit sold yet. Apples are as large now as last year at packing time, and believe we will have as much fruit as a year ago, when we had 122 cars. Not as many apples, but they are larger and more No. 1s.—B. F. C.

Hutchinson, Kan.—Three-fourths crop of apples, quality poorer than last year generally, but will have as many No. 1s. Maiden Blush sold for 65 cents bushel, Snow 75 cents, windfalls 20 to 30 cents.—W. H. U.

Atchison, Kan.—Sixty per cent of crop, affected with worms where not sprayed. No fruit sold yet, but crop is overestimated.—O. H. P.

Topeka, Kan.—State promises over 50 per cent of crop, of excellent quality. Buyers offer 33 1-3 cents per bushel in orchard for clean-up, or 40 cents per bushel for commercial fruit.—W. H. B., Sec.

Troy, Kan.—Sixty per cent of full crop, yet more apples here than at any former time, owing to more bearing trees. Apples very large and free from worms. Prices quoted are $2 to $2.70 per barrel for No. 1 fruit.—A. P.

Manchester, Me.—Very small apple crop here. Baldwins did not set much fruit.

Watervliet, Mich.—Forty per cent crop of apples. Some scab. Duchess sold about $2 per barrel.—W. H. S. (The Apple Shippers' Assn. gave Michigan 100 per cent crop. Our correspondent is a large orchardist, and one who sprays thoroughly.—Ed.)

Kansas City, Mo.—State promises one-third crop of fruit of very good quality. Prices not yet established.—L. A. G., Sec. (This is perhaps the best report on Missouri. Prospects best in northern part of state.—Ed.)

Carrollton, Mo.—Half crop of fine apples. No fruit sold yet.—J. S. A.

St. Joseph, Mo.—Forty per cent crop of apples around here. Quality No. 1. Apples are in pockets, some orchards good, others bare. —W. D. M.

Marionville, Mo.—One-third crop of apples, quality above average. No winter fruit sold yet. In quantity crop will about equal last year.—W. T. F.

Neosho, Mo.—One fourth crop of apples of fair quality, not so good as last year. Missouri Pippin, Winesap, M. B. Twig and Ingram are good. Ben Davis almost a failure.—F. H. S.

Oregon, Mo.—Half crop of apples here, of good quality. Apples are large, with no scab and fewer worms than usual.—N. F. M.

Richards, Mo.—Apples promise 30 to 35 per cent of crop. Think crop has been overestimated.—W. H. B.

Glasgow, Mo.—Forty-five per cent of crop of apples, quality above average. This estimate is full high, I believe, for crop is hard to estimate.—H. S.

Beaman, Mo.—Apples promise 45 per cent of crop, of good quality. Home market took summer fruit at fair prices, some sold to shippers at $1.10 per barrel. No winter fruit sold. —R. K. T. & Son.

Tecumseh, Neb.—Eighty per cent of apple crop is promised here, with quality better than for several years. Summer fruit sold at 30 to 40 cents bushel. This county ought to have several carloads to ship.—W. G. S.

Dubois, Neb.—Apples on our place promise three-fourths crop of good quality. Duchess selling at 40 to 60 cents bushel.—C. O. B.

Keene, N. H.—Apples still promise good yield here, mostly Baldwins.

Manchester, N. H.—About two-thirds of apple crop here.

Adams Basin, N. Y.—One-fourth crop of apples, some of excellent quality, some very scabby on account of continued rains. No fruit sold yet by barrel, although some orchards have been lumped off. More scab in unsprayed orchards.—C. O. B.

Albion, N. Y.—Crop of apples promises to be good, about half that of two years ago.

Syracuse, N. Y.—F. E. Dawley, secretary of New York Fruit-Growers' Association, estimates the crop for the state at 70 per cent of full crop.

Vail Mills, N. Y.—Reports concerning apples vary decidedly, some sections, chiefly in eastern part of the state, reporting abundant crop, while others have very little fruit.—J. P. F.

Medina, N. Y.—Crop is less than that of 1896 by far, nor will there be as many as two years ago. Apples generally of fair quality, though some are spotted with scab. Think price here, from buyers' standpoint, will be $1.25 and $1.50 for No. 1 stock, though farmers have an idea that price should be $2 to $3 per barrel.

Linwood, N. Y.—General outlook is here for about 60 per cent crop of good quality; no variety promises full crop.

Lockport, N. Y.—Apples promise half crop of fine quality.—D. T. McC.

Fredonia, N. Y.—Apples promise 20 per cent of crop of very inferior fruit. Not enough apples to supply home demand.—E. H. P.

Bradrick, Ohio.—Apples generally promise 25 per cent of full crop here. In our own orchards, which were sprayed, we have 75 per cent of crop which will run 95 per cent perfect. Unsprayed orchards have very few apples, most of it having dropped off. About 10,000 barrels of first-class apples here. Some yellow leaves showing on trees since dry weather set in.—U. T. C.

Bellaire, Ohio.—Apples about half crop here. —A. P. M.

Stryker, Ohio.—Apples one-third crop, winter fruit of good quality.—A. H. Q.

Winchester, Va.—Ten per cent of crop of apples. Fruit very scarce.—W. S. H.

Roanoke, Va.—Will have perhaps 1,500 barrels of apples in this county, which usually has 30,000 barrels.

Burlington, Vt.—Sixty per cent of apple crop, quality below average for Vermont, on account of scab. Weather has been bad, although crop may recover some later.—F. A. W.

Ontario, (Canada)—Crop promises about 80 per cent of full crop of excellent fruit. Canadian fruit will mostly be exported if prices are low enough to make this possible.

Latest Advices Concerning Apple Crop

Advices received just as we go to press tend to confirm the belief that the apple crop is generally overestimated. Telegraph reports are to the effect that there is damage from bitter rot in some sections, and that in New York and New England scab is plentiful, with weather conditions favorable for spread of both diseases. This will mean a reduction of the size of the crop of No. 1 apples. That this has been the effect is shown by the fact that early in August F. E. Dawley, secretary of the New York Fruit-Growers' Association, estimated the crop of that state at 70 per cent of full crop, while just as we go to press we received this report from him, being about two weeks later:

"Probable crop of apples, 60 per cent, not to exceed two-thirds of it fit for barreling."

In Northern Missouri and Kansas, Southern Iowa and Nebraska, the fruit is holding to trees well, and will likely mature.

As to prices, buyers will not give figures except in rare cases. A number of buyers are in Northern Missouri and Northeast Kansas looking for Jonathans. Demand for fancy fruit will be excellent, and buyers are offering $2.50 per barrel for Jonathans, f. o. b. cars. One orchard has been sold for $2.10 per barrel in orchard, for Jonathans.

The Western Fruit-Grower presents its report to its readers as being the best obtainable at this time. The apple situation is a problem. Buyers claim fruit will be cheaper at Christmas than at packing time, while growers will likely ask a good price.

Next month we hope to hear from every apple section in the country. If your section is not represented, send a postal card report, mailing it not later than Sept. 5th or 6th. Give size of probable crop, quality of fruit and what prices are being asked and offered.

Let us get reports from the growers for benefit of each other.

THE WESTERN FRUIT-GROWER.

Disparene as an Insecticide.

Elsewhere in this issue a reader asks concerning the use of arsenate of lead as an insecticide, as it does not burn foliage, remains in suspension better, etc. This insecticide has been very well received, and perhaps nothing has contributed more to this favorable reception than the fact that the Bowker Insecticide Co., Boston, Mass., has prepared an insecticide which is practically the same, and comes all ready to mix and use. This preparation is known as Disparene, and is largely used throughout the East in all cases where paris green preparations are recommended. There are a number of points which make Disparene valuable, among them: It does not burn foliage, although it will stick better than any other insecticide; it does not require such violent agitation as paris green mixtures, for it remains in suspension in water remarkably well; it comes in a shape so that it is easily mixed with water and can be applied at once; the poison in it is very strong, and its work is effective.

We recommend that all our readers interested in spraying write Bowker Insecticide Co., Boston, Mass., for full particulars. Disparene will be furnished from Western shipping houses, saving freight charges.

W. D. Maxwell, R. F. D., No. 2, St. Joseph, Mo., reports that twenty-five acres of his orchard is full of fruit, and of very fine quality. He expects 2,000 barrels of fruit.

Five for $1.00

The Western Fruit-Grower still accepts five new subscribers for $1, and asks each of its readers to try to send us this number by the first of January. We want one thousand of them to pledge themselves to get at least five new subscribers, and by so doing become members of our "One Thousand Club." Send your name and address if you will do this, and we will send coupons to use in sending subscriptions.

Don't neglect this matter, but try at once to get at least five new subscribers. We will show our appreciation by improving the paper in every way.

WESTERN FRUIT-GROWER, ST. JOSEPH, MISSOURI.

Strawberry Experiments

DURING the summer of 1901 a few varieties of strawberries were irrigated by allowing the water to flow down between the rows through furrows made with a bull-tongue plow. The rows were 200 feet long and one-half of this distance was watered and the other half left to check the results. The plants were grown in the matted row system and all, whether watered or not, were given good cultivation after the fruiting season was over, before that being mulched with straw. During late summer of last season there was a very great difference in the appearance of the plants in the irrigated and the non-irrigated plots, the watered one having made a much better growth. No runnners at all were formed in the dry plot, while the watered one made hundreds of fine ones. These young plants alone were worth ten times what the water and work of irrigating cost, and the water had to be paid for by the gallon. The following is the record of the fruit crop from the above mentioned experimental plots for the season of 1902:

Variety	Treatment	Yield	Ripened
Aroma	Irrigated	51 qts.	May 23
	Check	9 qts.	May 20
Bubach	Irrigated	49 qts.	May 21
	Check	6 qts.	May 21
Capt. Jack	Irrigated	12 qts.	May 23
	Check	4 qts.	May 20
Seedling—Crescent cross Capt. Jack	Irrigated	30 qts.	May 23
	Check	13 qts.	May 20
Clyde	Irrigated	47 qts.	May 20
	Check	9 qts.	May 20
Mexican Ever-bearing No. 5043	Irrigated	8½ qts.	May 30
	Check	6½ qts.	May 28
Gandy	Irrigated	35 qts.	May 30
	Check	20 qts.	May 28
Ridgeway	Irrigated	72 qts.	May 24
	Check	29 qts.	May 23

From the above table it will be seen that although the "check," or unwatered plots, nearly always began ripening from two to three days earlier than the irrigated, the yields was much heavier where watered. A fact not shown in the date is, that while the first picking of fruit in the check plot was well colored, firm and of fair size, later pickings consisted of small and often unmarketable berries. On the other hand the watered fruit was uniformly of good size.

Another feature of the irrigation was to show what varieties were the most drouth resistant. Two or three more varieties than shown in the table were under experiment enough to indicate what effect the drouth had upon them. Taken in the order in which they proved to be least injured by the drouth the following is the relative standing of the different varieties, beginning with one that was but very little injured and going down to a degree where they were almost killed out: Ridgeway, Gandy, Excelsior, Aroma, Barton's Eclipse, Clyde and Bubach.

Selecting Strawberry Plants.—Selecting any kind of plants for propagating purpose is a form of plant breeding, an important line of horticulture just beginning to be generall recognized and understood among the nurserymen and growers of the country. Selection is perhaps the most important method of improvement with all of our cultivated plants. The farmer is always careful each season to save his seed corn from the particular kinds of ears that he likes and wishes to grow; the gardener, also, is careful to select seeds from certain patricular types of beans, peas, etc., knowing from experience that the desirable qualities of each may be perpetuated and intensified in the next year's crop.

All of this is a practical application and recognition of biological theory advanced long ago that acquired characters are transmissable— that is, after causing a plant to become an improvement over anything of its kind that has existed before, we can, by careful selection, cause this desirable quality to be transmitted through the seed, cutting or graft, as the case may be, to its offspring.

Improvement by selection has been going on for so long a time that no one knows when it began, but it is safe to say that it was practiced by the primitive races of every land. What is more natural than that the savages should select those wild plants from the woods that best served their purposes for food or other use, and continue selecting the best of their kind year after year and thus gradually improve them? Coming to the notice of more civilized people, the process of improvement by selection in these plants was continued, being aided during the time by better culture and consequent better food supply—until they attained the height of excellence we are now familiar with among the various plants.

No plant has been more susceptible to improvement by selection than the strawberry. Found growing wild in the woods and on the hillsides from Virginia westward to the Rocky Mountains, this important fruit has been developed into its present high form of perfection almost within the memory of men now living. Selection is still going on and the grower who would keep up with the procession, as it were, knows that he must ever be on the alert to single out his best plants from each variety to propagate from. This part of the strawberry business has now been reduced to a fine art and it is only the skillful and systematic worker who achieves marked success.

The improvement of strawberries by growing from the seed is sometimes resorted to, but this method is, at best, a precarious and uncertain one and can not be recommended to the ordinary grower. As an example of the tediousness and long time required to reach results from growing seedlings, a brief review will be given of what the horticultural department of the experiment station has done along this line. In 1890 seeds were planted from the very best fruit of five varieties, and from this seeding a total of 2,044 plants were secured. Each of these plants was given a number which it (or those propagated from it) retained throughout the experiment.

The plants were set in the field and given good attention, and a careful record kept of the fruit of each. All of the plants that were equal or superior to their parents were marked, and each seedling was permitted to form a few new plants. During the summer of 1893, the seedlings were again studied, and selections of the best were made from each group. In making the selections, the parent plant was always taken as the standard of excellence. Everything not equaling the parent was discarded. Where a plant had been marked as superior the year before, it was retained, even though falling below the standard the second year, for it was thought that all such might show strong in a new plantation. During the meeting of the State Horticultural Society at Columbia, in June of that year, a committe of strawberry growers was appointed to examine the seedlings. With the additional plants that had been allowed to form up to this time, there was now a total of 4,300 individual plants under observation, and out of this number, 245 were selected by the committe as being worthy of more extended trial. After the fruting season had passed, each of the selected seedlings was permitted to make runners and from it twelve plants were potted.

This selecting and culling out process was continued up to the season of 1900, when there were but twelve numbers left. Each of these has been allowed to grow runners and form a solid matted row about twenty feet long. At the beginning of the experiment seeds from the fruit of the following varieties were planted: Warfield No. 2, Lady Rusk, Crescent, Bubach No. 5 and Gandy. At present, descendants of only the following three are left: Crescent, Warfield No. 2 and Lady Rusk. Out of the twelve now growing, this year's yield shows that at least two more will have to be discarded. The remaining ones are perhaps superior to their parents—that is, better than the parents were twelve years ago— but are nothing remarkable when compared with some of the new varieties which have been originated within the past few years. Thus is shown the uncertainties attending the growing of seedlings.

Selection is by far the better way of securing and maintaining high standards of excellence. This spring we have started an experiment in selection which we hope will yield some interesting and valuable results. The plan is this: Two rows 225 feet long of the following varieties, were set out—Aroma, Ridgeway, Bubach, Gandy, Warfield and Excelsior. The rows were four feet apart and the plants three feet apart in the rows. They are to be cultivated in the hill system and all runners this season carefully pinched off as soon as they form. A magnificent growth has already been secured. Next season a careful record of the fruit of each individual plant of each variety will be kept, and after the fruiting season is over, allow a few runners to form and take root. The new plants will be set to themselves and be divided into two general lots or divisions—those coming from the productive plants, and those produced by unproductive plants. The same plan of selection will be continued for a few years from both the original plants and from the offspring for each succeeding year afterward. In a few generations we should have a lot of data showing the results of the productiveness of plants selected from fruitful and nonfruitful ancestors.

W. L. HOWARD.

Columbia, Mo.

Wm. L. Culver, Grayson, Mo., used both dust and liquid sprays this spring, and doubled the quantity of poison to kill canker worms. This treatment was effective.

Made for Farmers

That's why it pleases them. Farmers who are remote from machine shops, etc., want an engine which will work right along, with no need of a machinist or repairs. The Weber Junior (2½ horse power) does this, and that is why it is the favorite gasoline engine for farm use from Maine to California.

Fruit farmers need a good gasoline engine for pumping water, sawing wood, grinding feed, etc., and especially for operating spray pumps. The Weber Junior is used by many readers of the Western Fruit-Grower for just these purposes. It can be mounted on a wagon and will furnish power for spray pumps which will produce the fine mist so necessary to successful spraying. It is the cheapest power one can use.

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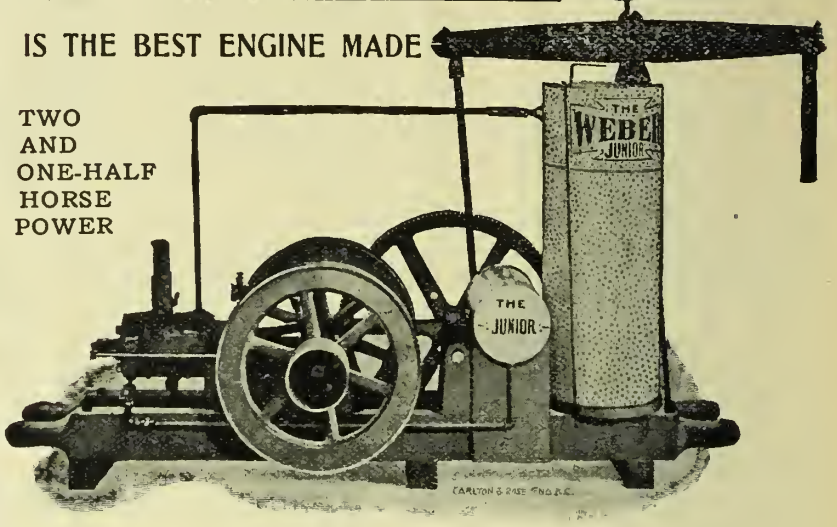

Not only will the Weber Junior run on any farm without breakage, not needing an experienced engineer, but it is shipped from the factory crated ready to run, and can be set up by anyone. It is thoroughly tested before leaving the factory, and any defective parts will be replaced free for two years from date of purchase. Can you ask any better proposition?

Send for descriptive circulars, illustrated, which are free for the asking.

Weber Gas and Gasoline Engine Co.

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IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD, were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries

also a success. Also general farm crops—Sugar Cane, Tobacco, Rice, etc.

300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

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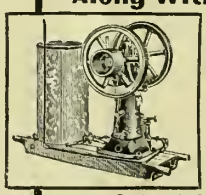
best by Test—74 YEARS. Largest annual sale. High quality—NOT high price. FINEST sorts. We BUD 4 million Apple trees, whole-root graft 5 million—1- and 2-yr. Other Trees, Vines, etc., in proportion. 1400 acres Nursery 43,000 acres Orchards. FRUIT BOOK free. **We PAY FREIGHT** box and pack free, ask **no money** till SAFE arrival,—guarantee SATISFACTION **We PAY** CASH each WEEK and want **more** HOME and traveling salesmen Stark Market and Quality Kings PAY: Apple of Commerce, Black Ben Davis, Champion, Delicious, Senator, Stayman Winesap; Gold plum; Kieffer; Elberta.—Visit us STARK BROS LOUISIANA, MO. Dansville, N. Y. Stark, Mo., etc.

Don't Struggle

Along Without a Power.



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ENGINE,

entirely self contained, fits every need of the farmer, miller, sawyer, dairyman, etc. 3 full horse power. Costs only 2 to 3 cents per hour. Safe, simple, efficient. Fully guaranteed. Catalogue of Vertical and Horizontal Engines of all kinds mailed free.

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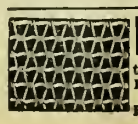
Our prices are right and show just what the goods cost you at your R. R. station or express O. Send at once for new descriptive price list.

New Haven Nurseries, New Haven, Mo.



FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free. COILED SPRING FENCE CO., Box 125 Winchester, Indiana, U. S. A.

Nebraska's Summer Meeting.

The summer meeting of the Nebraska State Horticultural Society was held in Tecumseh, Neb., July 29 and 30. Many of the citizens of Johnson county had come together to attend a Chautauqua Association in their beautiful park on the edge of town.

The Tuesday afternoon session was held in Chautauqua park that all might have the pleasure of listening to the very interesting memorial address on the life and character of J. Sterling Morton by Ex-Governor Robert W. Furnas of Brownville, Neb.

Governor Furnas related many interesting incidences of their life long friendship and work in the upbuilding of the state. In 1856 J. S. Morton started a Democratic paper at Nebraska City and a year later Governor Furnas started a Republican paper at Brownville. Party feeling ran very high in those days, each paper abused the other. After about a year of this the two editors happened to meet at a public meeting, were mutually attracted each to the other, and agreed that then and there all personalities should in future be left out of their respective papers. Thus commenced a warm and enduring friendship. These two gentlemen had an important part in the development of the agricultural and horticultural interests in the state of Nebraska. Ex-Governor Furnas' address was filled with apt stories illustrating the private and public life of his friend Mr. Morton.

R. A. Emerson of Lincoln, professor of horticulture in the State University discussed the renovation of the orchard. T. E. Snodgrass of Johnson, about small trees and illustrated with trees in hand his idea of the proper method of pruning the orchard. That is to commence while the tree was quite young and so shaping the tree and guiding its growth that heavy pruning would not be needed.

Mrs. E. G. Jury of Tecumseh, read an excellent paper on the Adornment of the Farm House. Mrs. O. A. Corbin of Tecumseh, a very interesting and carefully prepared paper on Small Fruits for Profit and Home Table. Dr. Hungate of Weeping Water, gave his experience with One Thousand Strawberry Plants and stated that strawberries could be grown at the rate and value of $500 per acre. The veteran horticulturist Rev. C. S. Harrison of York, was present and gave much exact information in regard to growing evergreens from seed.

Professor Lawrence Brunner of Lincoln, discussed the Ravages of Insect Enemies and the very great value of our friends the birds. Among other figures presented by Professor Brunner he mentioned that we have 100 different insect enemies of the strawberry, 400 insect enemies of the orchard, 150 different insects work on corn and thirty or forty on watermellons. Eeach female grasshopper deposits an average of 100 eggs. Plant lice not only lay eggs but in addition produce their young alive. He gave some very surprising figures regarding the increase of many of our insect enemies indicating what might happen in case they were not kept in check by our friends the birds. The birds eat weed seed in winter and prey on insects in summer. A robin eats ten quarts of cut worms in a season. A robin will eat as many canker worms as would be sufficient to destroy all the fruit and foliage on two or three apple trees. On an average each bird eats twenty-five insects daily. Reckoning 120 000 insects to the bushel the birds of Nebraska eat more than 16,000 bushels of insects daily and more than 2,000,000 bushels of insects are eaten in one season. An increase of double the number of birds would enable our feathered friends to be very much more effective in holding our insect enemies in check. A bird can destroy more insects than a man, the man using only his hands and feet.

Teach children to recognize birds as friends. Professor Brunner mentioned his mothers influence; that she had taught him that he had no more right to kill a bird than a playmate, That birds have as much right to life as we. He suggested that birds often eat fruit for want of water. Place water within easy reach and save a portion of the fruit. Birds in large numbers, means insects would be present in small numbers. Mr. Dunlap made inquiry regarding the parasites on grasshoppers. Professor Brunner made answer that a certain fly lays eggs on the grasshoppers, these hatch and the grub destroys the grasshopper. These grubs then leave the body of the grasshopper, enter the ground and in six or eight days emerge as a fly and again prey on the grasshoppers. It has been ascertained that one chicadee would eat 1,000 canker worm eggs in one day also it has been found to eat 100 female canker worm eggs in one day.

Professor Bruner urged the value of feeding the birds with millet seed or grain at times when other foods were scarce. Professor Brunner mentioned the work of grasshoppers in South America where the Argentine Confederacy offer a bounty, had secured the destruction of 30,000 tons of grasshoppers and 9,000 tons of grasshoppers eggs. Mention was made of one farmer at Lebanon, Neb., who, using a hoppodozer, destroyed eighty bushels of grasshoppers on eighty acres.

In further discussion of the birds as a friend to horticulturists, Hon. Silas Wilson of Atlantic, Iowa, and a prominent horticulturist of that state, gave his experience. He plants Russian mulberry for the birds; they ripen during the cherry season. He provides water. He would teach horticulture and love for the birds in the public schools. R. W. Furnas mentioned that the snakes and toads were among the greatest insect destroyers we have. In France toads are grown for sale to gardeners.

Professor Emerson discussed Ridge versus Hill Culture of Sweet Potatoes, showing that at the State Farm they had found that on dry land level culture gave largest crop. On moist or bottom land that ridge culture gave the best percentage of crop. They had tested high ground ridged and level, lower land ridged and level also by cultivation, by mulching, and by irrigation.

The subject of Organization for Marketing Fruit was assigned to E. F. Stephens of Crete. This gentleman had during the present summer travelled some 4,000 miles investigating methods in use in other districts. That in districts where fruit growers were thoroughly organized they secured much better facilities and much lower freight rates in marketing their products. In the course of the discussion Mr. G. S. Christy of Johnson, mentioned that there would be more than 500 carloads of apples in Johnson county and that freight rates was a matter in which they were much interested.

At the close of the meeting such members as desired were driven to the orchards about Tecumseh. The association was invited to hold their next summer mmeeting on the State Farm near Lincoln.

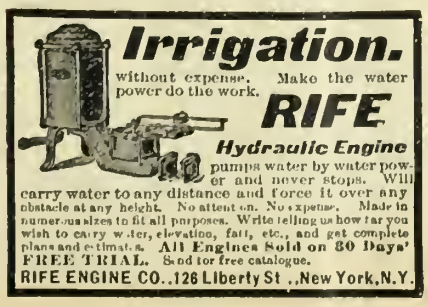
E. F. STEPHENS,
Crete, Neb.

The St. Joseph Society.

The July meeting of the St. Joseph, (Mo.), Horticultural Society was held at Hyde Park, with a good attendance of the members and their families, considering the busy time with all farmers. The meeting was called to order soon after dinner, and while there were no regular papers the members discussed informally the fruit situation. Everyone reported summer apples bringing unusually high prices. Good Wealthy apples were selling from $1 to $1.25 per bushel, and the demand was reported excellent. Winter apples were reported generally better than they have been for several years. Quality is good. Some of the members exhibited Wealthy, Yellow Transparent and Sops of Wine apples which were as fine as ever grew.

L. C. Wilson reported melon aphis working among his cantcloupes, although R. D. Parker reports his fields free from them as yet. The corn crop was reported as being unusually fine.

The August meeting will be held at Krug Park, with picnic dinner, on the last Saturday in August. It is hoped a large attendance will be present at this time. A number of members of the St. Joseph Society will visit the Missouri Valley Society, which meets at Parkville, Saturday, August 16.



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"A Complete Line of General Nursery Stock, everything hardy and grown out of doors; Varieties specially adapted to the Soil and Climate of the Middle West."

The unusually favorable growing season permits early assurance of good grades for the coming fall and spring. Not any transplanted, or otherwise rough stock in our entire plant—all young and thrifty, grown with the best attention, on the best soil and by expert workmen.

WE CAN RECOMMEND FALL PLANTING of nearly all we grow and some items we will **urge** our patrons to consider for fall planting. With this purpose in view we have prepared two special circulars as follows:

CHERRY TREES A four page circular which permits saying more about this one fruit than is usually permissable in a general catalogue. If you are fond of Cherries this will interest you and if not it will introduce to you some of its best qualities.

DUTCH BULBS for fall planting and flowers in the early spring.

We are prompted to issue this circular from a love of flowers, a demand for this class of cut flowers in their season, and a knowledge of a long felt want among our patrons. We have never grown them before except in a limited way, but will now take them up extensively. The list will include Tulips, Hyacinths, Narcissus, Crocus, etc., which we will import from the best Holland growers and have ready in the early fall.

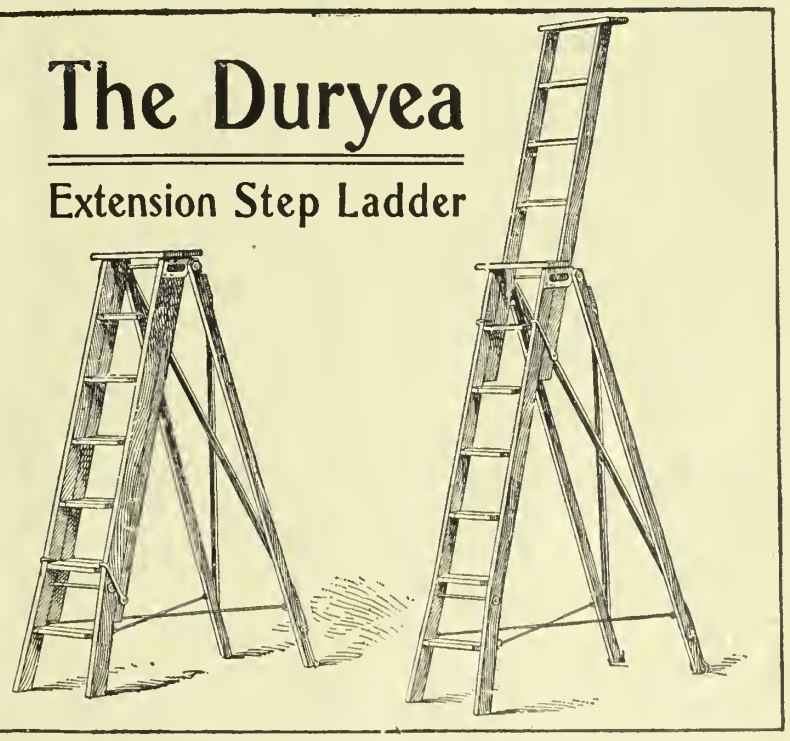
This circular contains eight pages illustrating and describing these charming flowers, gives complete directions for their culture in the garden and beds and also tells just how to grow them in pots for house plants. These circulars will both be free for the asking and will be mailed (about August 1st) to all who have our blue catalogue. If your name is not on our mailing list as having a blue catalogue it should be and a postal card will bring one promptly.

We strive to please you and to supply your wants in our line and if we do not have just what you want, we will try to convince you that you don't want it, or apologize and add it to our list.

M. BUTTERFIELD & SON, Proprietors, LEE'S SUMMIT, MO.

The Duryea

Extension Step Ladder



MR. FRUIT-GROWER: Do you remember how provoked you always were when every time you had to remove your old style ladder to a new place on the tree, lot of the finest and ripest clusters of fruit were knocked off and bruised, and some of the most productive twigs broken and destroyed? The "Duryea Extension" reaches right up and over the tree, and DOESN'T HAVE TO LEAN AGAINST IT. It supports itself, and is the only ladder that does. We guarantee it to be perfectly safe at any point of extension, and the firmest light step-ladder made. It is a perfect house step-ladder, being light, with nothing complicated about it. One dealer in nearly every town in the Northwest handles these ladders. If yours doesn't, write us for catalogue. Liberal discounts on quantity orders.

Helm Manufacturing Co., Jacksonville, Ill.

Tobacco Dust

FOR FRUIT TREES

Also Pure Bone Fertilizers, "Anchor Brand." Send for our free circulars.

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SALES OFFICE:
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Strawberry Notes

This has been a season to upset a man's plans. Scarcely had we finished planting when the rains began to come and they continued to come every few days through June and into July. They were not showers but heavy, beating rains that washed, taking some plants out of the ground entirely and burying others. But that was not the most serious feature. They kept the soil so wet that for periods of a week or two at a time we could not get on the ground. Meanwhile the weeds grew, the runners came out and ran into the spaces and young plants struck root. When a respite did finally come, we made the best of the situation and got the patches cleaned up as rapidly as possible. But such a state of affairs puts one behind with his season's work. Usual methods have to be modified. Tools, such as fine-toothed cultivators, are worthless. A big crop of runners has to be sacrificed or the little plants transplanted into the rows at a cost almost equal to what they are worth. It is all very unpleasant but we cannot control the weather.

Such a season simply impresses one man with the idea that horticulture is a good deal of a gamble. Of course, the element of chance enters into all business, but in some lines it can be guarded against better than in others. The question naturally arises, do we guard against the effects of adverse chance as much as possible? I hardly think so.

We plant strawberries on land so heavy that it cannot be worked for several days after a rain and take chances that there will not be many heavy rains. We plant on light land without means for irrigation and trust to a reasonably wet season. We have plants uncovered in the winter trusting that it will freeze early and stay frozen or that there will be snow on the ground all winter. We plant so largely that there are not enough pickers in sight to harvest the expected crop and trust that we shall find enough when fruiting time comes.. But after all the greatest chance many of us run is in undertaking too much for our capital. More business enterprises come to failure from this cause than from any other one. While horticulturists seldom come to an actual assignment or receivership, they frequently do what would bring a man in almost any other line to that end. We spread ourselves out too thin. To plant one acre of strawberries and do everything as it should be done means the tying up of considerable money in rent or interest on investment in land and tools, plants, labor and covering material for a period of from seven to fifteen months. But it looks so easy to set several acres that it is frequently done without sufficient consideration of the future cost before there is any income.. For want of capital the work is not done right, and the result is only a very partial success.

Common berries are practically a necessity of life. Fancy ones are a luxury. So far as my observation goes, the men who grow necessaries do not generally make fortunes at it. In our part of the country we do not see many farmers getting rich growing wheat, corn, pork and beef. But we do see men make money on vegetables out of season, eggs in midwinter, fancy fruit, blooded stock, in short, on the luxuries that people of means want and can pay for.. I know that fancy berries sometimes go begging for a good market, but I still believe that there is generally a scarcity of them. During part of the month of June, I lived at hotels in the western and northern parts of Ohio. At the best of them I saw scarcely a plate of strawberries that I considered good. I do not think it was because the hotels would not pay for good berries, for everything else was good.. I think first-class strawberries were not to be had. At some of the best groceries in Cleveland at the height of the season I saw some good berries, but few, if any, that I would consider very fine. I know some growers did market some fancy fruit and I know that they got a high price for it when common fruit was a drug on the market. The cases with which I am familiar were those of men who grow only a few berries, give them the best care and are ready for an emergency such as a frosty night. They have reduced the element of chance to a minimum. They have not plunged. It is unquestionably difficult for a man with small capital to make a great deal of money at anything, but it is noticeable that the men who do are those who do what most people cannot or will not do. In horticulture that thing that the majority cannot or will not do is to grow a fine product. Let the man with small capital take a small piece of land drain it if necessary, put in an irrigating plant if necessary, fertilize it heavily and plant only as much as he and such help as he is sure of securng when he wants it at a reasonable price, can take care of well, and I am satisfied his chances to make money are far ahead of one who undertakes to swing a big proportion with his little means.

Peter Henderson, who probably gave American horticulturists as much sound teaching as any man who ever lived, was a firm believer in planting strawberries in the summer, using potted plants. Henry Jeroleman, the famous New Jersey grower, sets his plants in the fall. On the other hand some of the best western growers have no use for summer or fall planting. Such diversity of advice is somewhat bewildering. The cause of it is largely in the men. Henderson was a gardener and he was perfectly at home potting and transplanting tender plants, while the western men who plant acres in the spring and do the work with horses do not take kindly to such "puttering." They are probably both right. The man who does not like to fuss over plants would better set his in the spring, but the amateur, the gardener or the man with a little home garden frequently finds it most advantageous to do some summer or fall planting. He may have neglected it in the spring, or his land may have been occupied, or he may want to try some new varieties that were too high priced in the spring or perhaps not on the market at all.. The secret of success with fall-set plants is in keeping them growing without a standstill at the time of transplanting. We all know that some of our finest fruit next season will grow not on the old plants we set last spring, but on the young ones that are now rooting. It stands to reason that if those young ones can be transplanted without a setback that they ought to produce as fine fruit somewhere else, and experience bears this out. The difficulty is to avoid the setback. It is not so likely to occur in transplanting on one's own grounds, for the work can then be done when the weather is favorable, and the plants will not be out of the ground long.

But plants ordered from a distance are likely to arrive in a drouth or a hot spell and one must then be prepared for such an emergency. Undoubtedly potted plants are the best, all things considered, for summer and fall planting, for almost anybody can handle them without causing them to suffer injury, but they are expensive and the transportation charges on them are high. Where one does not feel that he can afford this expense, there are several methods he can make choice among to avoid it and still get almost as good results. The simplest is to put off planting until the period of fall rains, generally in September. That, however, is a little later than it is desirable to plant, especially in the north where winter comes before the plants have had time to make much growth. Another method is to heel in the plants in a frame, made of boards on edge with the earth banked up against the outside to prevent the ingress of air and evaporation of water and with a shade made of muslin, either tacked on lath frames so that the individual screens may be laid over the board frames or tacked to one side of the frames so it can be drawn over them and fastened. There the plants can be watered and shaded for a few days and, when a favorable time comes, they can be well sprinkled and transplanted with earth adhering to the roots. An improvement on this method is to pot the plants and sink the pots in a frame. Then the transplanting can be done with even less disturbance of the roots. One must be careful not to keep the plants soaked or shade them too long.

When they are transplanted they are treated like any other plants, but they require extra care when cold weather comes. They have not the hold on the soil that plants have which have never been disturbed, and are therefore the more likely to heave out in the winter. The space among them should be fully covered about the time the forest leaves fall and the plants themselves should be covered when real freezing weather comes. It takes some work, but it means a partial crop of fine berries next summer. In the case of a new variety it enables the grower to see what it is next June and, if it is desirable, gives him a much greater number of plants next summer than he would have from the same number set next spring.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

Our Strawberry Plants

are growing finely. The extreme drouth of early spring cut our acreage in two, but we have a fair acreage remaining, and as weather has been very favorable since May, we have promise of several million of best plants grown. A number of new varieties entirely dried out and our catalog for spring of 1903 will give you a great deal of information on varieties best suited to our western country.

WE HAVE INCREASED

Our Raspberry plantings and will have a very large supply of plants for our fall and spring of 1903. Also Blackberry plants, and don't forget that we have 150,000 1-year-old asparagus plants; best varieties and largest 1-year-old plants you ever saw. If you want plants this fall, write for prices. Address

F. W. Dixon, Holton, Kan.

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Questions and Answers

W. W. P., Mt. Morris, Ill.—When is the best time to take up blackberry roots to set out next spring? Is there a better variety than Snyder for Illinois, to stand cold winters and dry summers?

Answer by Major Holsinger: Blackberries can be taken up any time after a hard frost. I prefer to delay the work until early spring and to transplant immediately. If, however, your ground is ready for transplanting this work can be done in the fall. There is no better berry than the Snyder, being hardier standing winter and drouth, besides bearing more fruit than any other.

Dr. J. M., Normal, Ill.—I have mailed to your address, a section of an apple limb, containing a worm, that I have not seen an account of. You will readily see where it was cut by the worm. You will also observe the twig it started in at and cut from the center of the limb outward. I notice it leaves no chips and works in the pith. This particular limb had six fine well developed apples on it. I found quite a number of trees affected. Please state in your next issue a history and what extent the orchard will be injured. I advised my man to pick and burn all detached limbs.

Answer by Prof. Stedman: In reply to query from Dr. J. McCann, Normal, Ill., the insect he sends is the Twig Pruner. These insects do similar damage to other fruit trees and bushes and to many forest trees. They get into the orchards from the forests and brush lands, where they will be found in large numbers. The only thing one can do is to gather the fallen twigs and burn them at once, but where the orchard is near the forest or brush land, this method will count for little, as they will come in from such places again.

J. C. S., Crab Orchard, Ill.—Please find enclosed some of the bugs which are destroying my apple trees. They attack the tree during July and August, boring through the bark to the wood causing the sap to flow out through the hole he leaves. The tree dies immediately. Please tell me through your valuable paper what the name of the insect is, also what I may do to prevent it. The trees are eight years old and I have never been troubled with this insect until the last three years.

Answer by Prof. Stedman: The beetles he sends are the common bark or pin-hole beetles, which attack the sickly parts of trees and the unhealthy or injured trees first and kill them. They multiply rapidly and when very numerous may attack healthy trees. The best thing for you to do is to cut out all dead, sickly and dying limbs and trees and burn them at once.

G. W. S., Fordyce, Ark.—I would be glad to hear from some one on pear blight this season. If anyone has been able to control it or describe the insect that stings the limbs and causes them to die, I would be pleased to hear from him. It has been worse on my trees this year than ever before. Other work being pressing I did not spray but one time, but I have never been able to keep it off of Leconte trees by thorough spraying for six years. My Kieffers were never hurt much until this year. I cut Lecontes down and all my other trees are damaged to the extent of three-fourths of a crop of pears. Should they blight another year as bad they will be worthless. What apples would do here for winter?

Answer by Major Holsinger: You are in error in believing the pear blight to be the work of insects. The insects attack the trees only after the tree is diseased. I have had so much to say on blight in current issue that you cannot find answer to your letter. Spraying? I am doubtful if spraying will do any good for preventing the blight. Kieffer is as nearly blight proof as any of our pears. I planted five Kieffers eighteen years ago that have borne fruit every year, (are now quite full), showing a little blight on two or three occasions, but are sound and healthy. We have several thousand. Kieffer of later planting that were badly injured the winter of '99 but have shown very little blight. Leconte has always blighted and is useless. As to apples for your section, we would recommend Gano, Ben Davis, York Imperial, with some of your new seedlings, of which there are quite a number. On this consult your experiment station; that is what they are for.

A Subscriber:—Can you or some of the readers of the Fruit-Grower tell me how to start cedar trees from the seed, also pine and spruce from the cones?

Now, that is one of the trade secrets which those who have them guard very carefully. The Bruning family of Nebraska and Iowa grow millions of seedlings, but now they get the red cedar seeds to germinate readily is a secret. W. H. Bruning & Son, Cedar Bluffs, Neb., or F. H. Bruning, Kent, Iowa, can furnish seedlings about as cheap as they can be grown, however.

A. E. G., Shelby, Mich.—What is the value of sand vetch as a fertilizer for bringing up sandy soil, and which would be better for the land, a crop of sowed corn, say three bushels to the acre, or a crop of sand vetch plowed under. I have a sandy soil, and wish to enrich it.

Answer by A. T. Erwin, Iowa experiment station: As a fertilizer, I should strongly advise Mr. Gunn to use sand vetch in preference to sweet corn. As a plant food producer the two plants belong essentially different classes. Corn is a nitrogen consumer. Vetch belongs to the clover family, and clovers, including field pea and soy beans, etc., are nitrogen gatherers. Nitrogen is one of the most important elements of plant food. It is abundant in the atmosphere, but not in such a form chemically as may be used by the plant. Upon the roots of the clover family are nitrogen gathering nodules; small knotty bacterial growths which possess a peculiar power of gathering nitrogen from the atmosphere and storing it in the soil ready for use by other plants. Hence the growing of vetch or other clover crops is equivalent to buying commercial nitrates for applying to your soil and at a very much cheaper rate. At this time there is some confusion regarding the identity of vetches on account of the multiplicity of common names. The hairy vetch (Vicia villosa) is also called sand vetch or winter vetch. In distinction to this species there is spring vetch (Vicia sativa) which is entirely different. Spring vetch is a weaker grower and inferior as a cover crop and the orchardists should note to procure the right variety. (See also article in this issue on subject of hairy vetch, by H. H. Griffin of Colorado.—Ed.)

J. W. Johnson, Alderson, W. Va.—(1) My apple leaves are turning yellow and falling off; three-fourths of the leaves I think are off of some trees. The trouble has existed in my orchard for several years. Early apples ripen up all right, but winter apples ripen prematurely and the crop is lost by rot; every winter large limbs die and are taken out. Trees are forty or fifty years old. This land is in grass, but that cultivated and manured with stable manure is in no better condition. (2) Also what the good and bad points are of the Gidion apple and Zankfords seedling apples for market and health of tree bearing?

Answer by Prof. Howard: (1).—The orchard referred to is evidently badly infested with apple scab and canker (or black rot). Scab does more damage to the late varieties than it does to the earlier sorts. This disease attacks the leaves, tender shoots and the fruit. It does not cause the apples to rot, but makes them grow in a distorted manner which injures their market value. The leaves may be almost or entirely destroyed. The remedy is Bordeaux mixture before the buds open, immediately after flowering, and once or twice later at intevrlas of from ten days to two weeks. The canker or black rot attacks the wood of the old branches which gradually spreads and kills that part of the tree. The same disease occurs in another form as a rot on the fruit, but this is not common, at least in the West. The disease is not difficult to control if the cankered limbs are cut out and burned and the orchard sprayed as for scab. (2)—If by "Gidion" is meant the apple known under the names of Peter Gideon, Gideon's Best, or Peter Gideon's Best, it is a red colored, late summer variety in the latitude of St Louis, comes into fruiting early in life, is a profuse bearer, but the tree is a weak grower and does not last long. Am not familiar with the Zankford's Seedling.

A. A. S., Hamburg, Iowa.—Would like a little information through next Fruit-Grower as to the cause of the leaves of cherry trees falling at this time of the year. At this writing nearly all the tops of the trees are bare of leaves. Last year they did the same thing. Cherries seem to ripen all right; had a good crop last year, but only about half as many this year. Enclosed find a few leaves. Will spraying help—or is it the spraying that causes the damage? Cherry trees are set between apple trees. Sprayed the apple trees and of course more or less of spray drifts on to cherries.

Answer by Prof. Howard: From the specimens sent, the leaves appear to be affected with a leaf-blight known to the botanist as Cylindrosporium padi, which attacks the cherry and plum. This disease is most destructive in the nursery, causing premature defoliation of young trees; it may also cause severe injury to fruit-bearing trees. The leaves become spotted and perforated by holes caused by the falling out of withered spots. The best remedy is to spray with dilute Bordeaux mixture early in the season. Full strength Bordeaux will severely injure the foliage. (We will have an article on this subject next month.—Ed.)

I. A. W., Glencoe, Ohio.—(1) Some nurserymen pushing the Henry pear claim that it is very large, good quality and that it will keep until March with no more care than is required to keep a Ben Davis apple. Will the facts in the case warrant such a claim? (2) Describe the Sudduth Pear. (3) Is there a yellow Morello Cherry in cultivation?

Answer by Prof. Howard: We have not grown the Henry pear, neither have I seen it growing. Beware of investing much money in novelties. (2).—Apply to Capt. H. Augustine of Normal, Ill. (3).—If there is I have not seen it.

W. B. B., Springdale, Ark.—(1).—How do you prevent Japan plums from decaying with black rot, especially Abundance. And if you succeed in preventing Japan plums from black rot, in what measure do you succeed? (2).—What is the best and earliest Japan plum now on the market? (3).—How will Strawberry (a Japan plum) compare with Burbank as to size of fruit, time of ripening, and productiveness? (4).—How do German prunes succeed in the Ozarks, and are they as susceptible to black rot as the Japan plum, and if German prunes succeed in the Ozarks what variety is best adapted to that region? (5).—Do Japan walnuts succeed in the Ozarks and what is their commercial value? How do Japan walnuts compare with English walnuts as to hardiness?

Answer by Prof. Howard: (1).—I presume it is brown rot that is meant, the black rot being confined to the pomaceous fruits—apples, quinces,, etc. We succeed in ripening our Japan plums, especially the Abundance, every season with but few rotten ones. We do this by spraying the trees in early spring before growth begins with copper sulphate solution, later with dilute Bordeaux mixture, and near the ripening period with ammoniacal copper carbonate solution, which does not discolor the fruit. Yosebe is the earliest Japanese plum, ripening ahead of Red June, but I do not consider it to be of as good quality; it is also less firm and consequently would not ship as well. (2).—Abundance (or Botan) is the surest Japanese variety we have tried or that I am familiar with, although Red June and Burbank are good. (3).—Strawberry is an American plum of not very good quality. It does not compare very favorably with the Japanese Burbank, either in earliness or productiveness. (4).—I know of no reason why the German prune should not succeed in the Ozarks and am quite sure it would not be as susceptible to rot as the Japanese varieties. There are a number of different plums passing under the name of German prune, so that I could not speak with any degree of certainty as to varieties. (5).—In general, Japanese walnuts are much hardier than the English walnuts. Here in central Missouri our Japanese trees were not injured by the cold weather and began producing when four years old, but eight-year-old trees were killed by last season's drouth. The English walnuts planted seven years ago have never fruited, because they are killed back almost every winter, but the drouth did not kill any of them, although some injury was manifest Perhaps the latter would be hardy in Arkansas. I believe that both should be grown on locations where the wild butternut is known to succeed best, as their growth and general appearances are very similar. I do not know of either Japan or English walnuts having been grown in commercial quantities in this state nor what they would likely sell for. Those who have purchased them at the grocery stores know something of the cost to the consumer.

I. N. L., Columbus, Ind.—We have some old apple trees which are more or less affected with what I think to be canker. The disease strikes the big limbs and kills the bark, which turns black and gets wormy. Sometimes it will extend along one side of a limb for two or three feet; other times only a few inches, and runs around the limb, killing it. We just came into possession of the orchard this spring, and have scraped off the scales of dead bark from trees. What is the best treatment for the disease, and how applied?

Answer by Prof. Howard: The trouble is undoubtedly canker. The only remedy is to cut out and burn the affected branches. In scraping off the bark the disease is only scattered through the orchard. The germs of the germs of the disease long distances. On falling upon a growing apple tree, the germs grow and cause a rust on the under sides of the leaves. The foliage of apple trees is sometimes destroyed by this rust (which does not attack the fruit), and of course the vitality of the tree is seriously injured and the fruit will very likely fail to mature properly. Apple rust is difficult to control after it has attacked the trees, but of course may be prevented by destroying all the cedar trees near the orchard. It is believed that spraying the trees with Bordeaux will assist in preventing the rust from gaining a foothold in the orchard. (2).—It is thought by some that the arbor vitae spreads the disease as well as the cedar and juniper, but I have not found this to be the case.

Several Subscribers.—Can you tell us how to preserve fruit so that it will retain its original size and color?

Answer by Prof. Howard: We preserve all of our fruits in a weak solution of formaldehyde or formalin, which may be secured at a drug store. One part formaldehyde to ninety-five parts water will be sufficiently strong to preserve any kind of fruit for an indefinite time if the vessel is corked or otherwise covered so the material can not evaporate. The size of the fruit will not change in this solution, but unfortunately the bright colors can be preserved for only a short time. It is a very satisfactory preservative for most of the plums and grapes. Alcohol will answer the same purpose, but is much more expensive. Formalin preserved fruits can not be eaten.

canker enter the tree at some point where there is a wound, hence, if it is necessary at any time to remove a branch, the wound should always be painted over. Canker seldom or never occurs in well-kept orchards.

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THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

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JAMES M. IRVINE.....Managing Editor

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On August 19 there will be held in St. Louis a conference of representatives of different horticultural societies and fruit-growers' associations to discuss the advisability of calling a meeting for some time in December of representative apple growers from all over the United States, with the object of organizing a national apple growers' association. While we are not wholly informed as to the objects of the association, the Western Fruit-Grower can see the need of such an organization. We understand that the object is simply to unite the commercial apple growers of the country into an organization which shall consider apple growing as a straight-out business proposition, just as other lines of business have their central organizations. And the apple growing business has undoubtedly reached a point where such an organization is justified. This association is intended to be to the apple-grower just what the National Apple Shippers' Association is to the apple dealer. There are a great many questions which such an organization can consider that are entirely out of reach of local or state horticultural societies. Take the matter of size of apple box, for instance, which is discussed elsewhere in this issue. With an organization representing all the apple growers co-operating with a similar organization representing the apple buyers, there is no doubt the whole matter could be settled very promptly. And there are other questions of equal importance which can best be handled by such an organization as is proposed. Take the matter of grades of apples, and other subjects of like nature, which are now discussed by the Apple Shippers' Association. The growers have an interest in these matters, and they should co-operate with the buyers. The Western Fruit-Grower wishes the proposed organization the greatest possible success, and will co-operate in every way possible to make the plan a source of profit to apple growers. Of course, it is understood this proposed organization is not to contend in any way with state horticultural societies, or even with the American Pomological Society—it is intended to be solely a business organization we believe, composed of men who make a specialty of growing apples on a commercial scale. And there is room for and need of such an organization.

A letter from Prof. W. L. Howard in charge of the Missouri Experiment Station, Columbia, Mo., in the absence of Professor Whitten, says the latter gentleman, with his family, will return home September 1. Professor Whitten has been studying at Halle, Germany, during the past year, and has just received the degree of Doctor of Philosophy, the highest degree conferred by the University of Halle. Professor Whitten's many friends will welcome him home and all will rejoice in the honor which has been conferred upon him. He is one of the leading horticultural educators in the country, and Missouri should see to it that he is not enticed from the state by some other institution than the one with which he is now connected.

In sections of the West this season, where good crops of apples are promised, summer apples have sold at remarkable promises. The shortage of the berry crops is likely partly responsible for this, but it is a fact that in recent years the demand for good summer fruit has been far in excess of the supply. Time was when summer apples were a drug on the market, and few new trees were planted. Now the price received for summer fruit is usually greater than winter fruit brings. Yellow Transparent, Red Astrachan, Duchess and Wealthy seem to be favorite sorts. All have sold for big prices this season. Around St. Joseph, at least, this has been the case. Shippers have fought for good fruit to ship, but the price has been too high. Good Wealthy apples sell readily for $1.25 per bushel. Shippers pay $2 per barrel for the Wealthy on the farm. This variety is a prolific sort in this section, and certainly pays its way. There is always danger, of course, in over-stocking a market with summer fruit, but buyers say that if sufficient quantity of summer apples can be secured to ship in carlots, there is little danger of the summer varieties not being profitable. This suggestion is offered for what it is worth.

Two years the apple crop was overestimated and prices were lower than they should have been. While the crop this year is doubtless large the country over, our observation leads us to believe the crop is again estimated to be larger than it really is. Prices for fruit will not be as large as they were a year ago, but they should not be as low as some estimates would indicate. Some buyers talk of fruit at 75 cents a barrel, but this is entirely too low, we believe. Summer fruit has sold for more than that much per bushel, showing the people want apples. The prosperous conditions will make the demand good on part of the consumer, so prices will be held up fairly well. The country is in condition to absorb great quantities of fruit at fair prices.

Near Rushville, Mo., between St. Joseph and Atchison, Kan., is a building on which is a sign, "Salting Station No. 24.—Heinz, Pittsburg, Pa." This means that Missouri-grown cucumbers are salted here, shipped to Pennsylvania, there made into pickles, and then perhaps these same pickles are sent back to supply the best class of trade. We would simply suggest that freight both ways on these pickles might be saved by finishing the process in Missouri. The same is true with regards to many of the best brands of preserves, jellies, etc., which can be produced near at home very cheaply, saving money to the consumers and building up good markets for the fruitgrowers.

We wish to thank those who have sent their names as members of our "One Thousand Club." We now have a number of persons who have agreed to send at least five new subscribers before the first of the year, and some have already done so. We want at least 1,000 of our readers to agree to get five new subscribers each, and and to everyone who does this we will send a copy of M. Crawford's book on Strawberry Culture. Remember, the five names can be sent for $1—a very low price. If you will join this club, send your name on postal for coupons, which we will send to your address to use in sending names of the new subscribers. Let us hear from several hundred this month.

Reports from many correspondents report that fruit trees and plants of all kinds have made a most satisfactory growth during the present season. There is every reason to believe that the fruit-growers will share in the general prosperity of farmers generally, for prices have been remarkably well maintained, even for fruits which were produced in goodly quantities. The American people are being educated to use more and more fruit, and for several years they have had the means to buy—and of course that made a good market.

The second Missouri State Fair will be held at Sedalia, August 18 to 23. This fair will undoubtedly be better than the first one; held last year. Especially should the fruit-growers of the state see to it that the horticultural features are what they should be. The fruit crop this year is of unusually fine quality, and the exhibit should be first-class. Send fruit to the State Fair, Sedalia, Mo., and freight charges will be paid.

The Missouri Society's Resolutions.

We have read with interest Major Holsinger's reason for casting the only dissenting vote against the resolutions passed at the June state meeting looking to the correction of the abuse of nomenclature and the protection, in the way of advice, as far as possible, of the planter against loss in planting new and untried fruits. We are very much pleased to know that the major indorses that part of the resolutions which is most important. Had the wording of that part of the resolution referring to planting new fruits or trying new theories of propagation been "we do not recommend the planting of them, **extensively,**" which we believe was the spirit the writer intended, there would not be any difference of opinion. Whenever these matters are properly regulated and the introducer of any new fruit can and will be properly protected as well as the planter by placing them in the hands of the fruit experiment stations, which should not only conduct these tests at station grounds, but in the different fruit sections of the state as well, will save many costly experiments in an extensive way that are continually being made by the planters.

Referring to your editorial comment upon this matter, we agree with you that Missouri is entitled to the best, which she now enjoys by keeping in front of the procession under the wise and conservative recommendations and experiences of her fruit growers who have wielded proper influences along the best lines possible in the past. Feeling that any action taken by the state society, having for its sole object the protection of the interests of all the fruit growers of the state and the proper advancement along new lines of work, can but be beneficial to all, we are fraternally yours,

GEO. T. TIPPIN.

Nichols, Mo.

In regard to Friend Tippin's letter we will say we believe there is really little difference between his position and that of Major Holsinger, for both desire growers to be protected against fraud. Major Holsinger, as well as ourselves, simply had a doubt whether the resolution as passed would have the effect desired. Our position was that perhaps the testing of all new fruits at the experiment stations in Missouri, and their report on same, would lead growers to plant extensively those fruits recommended, when as a matter of fact the grower should still test for himself. If the resolution means that the experiment stations should have a test station in each county in the state, and the recommendation be that no fruits should be planted **extensively** or **in large quantities**, until they have been tested and reported upon by the experiment stations, then we most heartily indorse that sentiment, and will go even further, for we believe the grower should even then not plant any new or untried fruit in large quantities until it has been tested in his immediate neighborhood, and on soils similar to his own. The part of the resolutions referring to the nomenclature of fruits is all right, we believe everybody will admit. If the different horticultural societies co-operate with each other and with the American Pomological Society, many abuses will be corrected.

The resolutions were certainly well intended, and will doubtless open the way for better things. If they don't have the effect desired—that is, the protection of the planter—they will doubtless be changed until they do.

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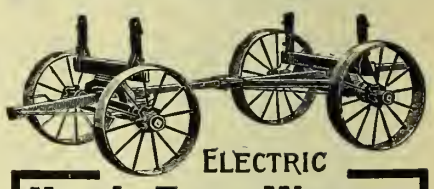

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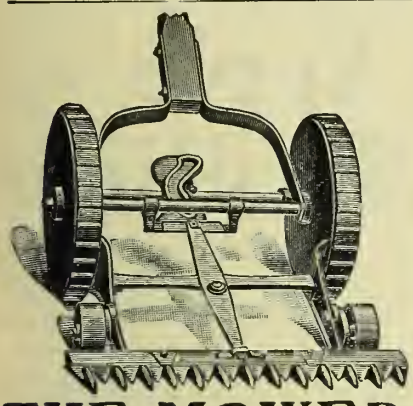
NEARLY A HALF MILLION APPLE AND PEACH TREES
for Fall, 1902, and Spring, 1903, trade. Prices right and stock the best. All propagating done from bearing trees. Price list will be ready August 1. Entomologist certificate will be furnished with every order. Our leaders are Ben Davis, Jonathan, Ingram, York, Elberta, Emma, Salway and Family Favorite. Address
S. R. Hammond, Mgr. Olden, Mo.

PROTECT YOUR TREES
With the Davis Wire Fruit Tree Protectors if you desire your fruit trees to grow without being injured by rabbits. If you value your time and labor this is the cheapest and best device known. Absolutely perfect. Praised by growers who are using them. Send for circulars, testimonials, etc. First cost the only cost. $2.25 per 100; $19.50 per 1,000; 5,000 or more, $17.50 per 1,000. Direct all communications to JOHN W. DAVIS, Jr., Clarksville, Mo.

GRAPE VINES Our Portland, N. Y. Grape Nurseries, in the center of the famous Fredonia Grape Belt, produce the **finest** grape vines in the world. Prices as low as those of any reputable growers.—STARK BRO'S, Louisiana, Mo. Portland, N. Y.

Farmers' Handy Wagon
With 4-Inch Tire Steel Wheels
only
$21.95
Low and handy. Saves labor. Wide tires, avoid cutting farm into ruts. Will hold up any two-horse load. We also furnish Steel Wheels to fit any axle. Any size wheel, any width of tire. Catalogue free.
Address Empire Manufacturing Co. Quincy, Ill.



THE MOWER
That will KILL ALL THE WEEDS IN YOUR LAWNS. If you keep the weeds cut so they do not go to seed, and cut your grass without breaking the small feeders of roots, the grass will become thick and weeds will disappear. THE CLIPPER WILL DO IT. Send for catalogue and prices.
Clipper Lawn Mower Co. Inc., Norristown, Pa.

Rogers' Dewberry

CIDER PRESS
One-third more cider with the
HYDRAULIC
than with the old style press.
It pays the best to buy the best
Send for Catalogue, free.
Davis-Johnson Co.
Western Agents.
HYDRAULIC PRESS MFG CO.
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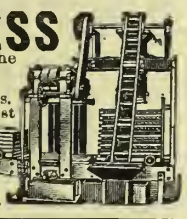
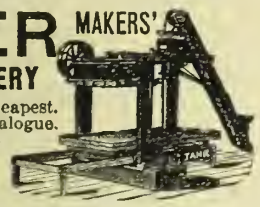


WHITMAN'S PATENT AMERICUS

The Best Cider and Wine Mill made. Will make 20 per cent. more cider than any other. Geared outside. **Perfectly Adjustable.** Prices as low as any first-class mill. Mfrs. of Hay Presses, Horse Powers, Corn Shellers, Feed Cutters, Feed Mills, etc. Send for circulars.
3 SIZES
WHITMAN AGR'L CO. St. Louis, Mo.

CIDER MAKERS' MACHINERY
Best and cheapest.
Send for catalogue.
HOOMER & BOSCHERT PRESS CO.,
473 West Water St.,
SYRACUSE, N. Y.



WEST MICHIGAN TREES
are healthy and hardy. Buds cut from bearing trees insure stock true to name. 913 acres—two million trees—apple, peach, cherry, plum, pear and quince. **Ornamental trees and shrubs. Order direct at wholesale prices.** Beautifully illustrated catalogue sent free. Write to-day.
LAKE MICHIGAN
WEST MICHIGAN NURSERIES
Box 23, Benton Harbor, Mich.

HARDY Nursery Stock.
To obtain new customers we will send at the proper time this fall 1 beautiful Flowering Tree and 1 Russian Flowering Shrub to first 10,000 property owners who answer this adv. and send two 2c stamps to help pay postage.
Catalog free for the asking. Our **Booklet** "The Story of a Tree" will save you dollars. Write to-day.
THE GARDNER NURSERY CO., Box 132, Osage, Ia.

TREES Fruit & Ornamental, Shrubs, Roses, Bulbs and Plants.
Correspondence solicited. Valuable Catalogue free.
49th year 44 greenhouses. 1000 acres.
THE STORRS & HARRISON CO., Painesville, Ohio.

ORNAMENTAL LAWN FENCE
Save 20 to 25 per cent. by buying direct from manufacturer. MADE OF STEEL.
CHEAP AS WOOD
Special Prices to Churches, Cemeteries and Large Parks.
32 page **Catalog free.**
COILED SPRING FENCE CO.
Box 413 Winchester, Ind.

HEAVES CAN BE CURED
We have a guarantee cure for Heaves, Coughs and Colds. Guaranteed to cure or your money refunded. One package by mail, 60c 12 pkgs. by exp., with written guarantee to cure $5.00. WILBUR SEED MEAL CO., 305 2nd St., Milwaukee, Wis.

The Maynard Plum.

The accompanying illustration shows one of Luther Burbank's new plums, Maynard, named for Professor Maynard of Amherst College, Mass. The photograph was taken from two specimens which Mr. Burbank sent the Western Fruit-Grower, and which arrived in perfect condition. Regarding the Maynard Mr. Burbank writes:

"By mail to-day I send you some rather small specimens of my new hybrid plum, Maynard. They of course have to be picked quite green in order to ship safely. Professor Maynard of Amherst College, Massachusetts, who saw them growing on my place several years ago, pronounced them the best plum he had ever tasted. The Maynard is a great bearer, with immense apricot-like leaves, and the strongest grower of anything which I have seen in the plum line. These specimens are from two-year-old trees, and are less than half the usual size, but I have no others now in the right condition."

The Maynard is certainly a large plum if the specimens received were less than half size, for the larger one of the two was about two inches in diameter. The illustration reduced the size somewhat. The quality of the plum is excellent, very sweet without the sickening sweetness noticeable in some other varieties. The flesh of the plums was red, the skin a very deep red; juice very rich and heavy. The cuts do not show the beauty of the plum as it should be, as the bloom was almost entirely rubbed off the specimens when they were received. Certainly the Maynard plum, if the tree and bud are hardy, should be well received, for the quality of the fruit and its attractiveness will commend it to all.

Texas Farmers Congress.

This congress is composed of various associations as the Cotton Growers' Association, Dairymen's Association, Swine Breeders Association, Poultry and Pet Stock Association, Beekeepers Association, Truckers Association, Texas State Horticultural Association.

We met at College station on the 15th of July and continued in session until the 19th. There were at least 1,000 delegates in attendance, and it was a grand meeting and although the largest meeting we have ever had, the college professors entertained us royally—charging therefor $1.00 a day barely enough to cover expenses. The success of these annual meetings is due largely to that prince of organizers, Professor J. H. Connell, who for years has been associated with the College as Professor of Agriculture, but he was ably seconded by the whole faculty and all their corpse of teachers and assistants.

Professor Connell retires from the College and will enter into work with the "Texas Farm and Ranch," and will devote his time largely to organizing farmers institutes all over the state. Texas legislature has never yet been able to see the value of farmers institute work, and has made no appropriations for this work, but this congress passed resolutions asking for an appropriation of $10,000 to begin this work, and we will surely soon enter upon a new era of progressive farm instructions.

Each department of the congress would hold their separate sessions in separate rooms, and would at certain times each day come together and spend a few hours as a united congress. The most advanced thinkers in each of these departments, from all parts of the state came together, and made it one of the grandest meetings ever held in the state. These were all thoroughly practical men deeply in love with their special callings, and many of them fine public speakers, and their essays, speeches and practical talks were a feast of good things to all workers in any of these departments of agriculture. Politics is totally ignored and no man asked even his room mate how he would vote.

As a sample of some of these speeches, I send you the written part of my speech upon Good Roads. All who heard it said I had taken advanced ideas upon this all important subject which would undoubtedly in the near future help to remodel the road laws of every state.

Our Agricultural and Mechanical College is rapidly becoming one of the best in the United States. We intend to make it second to none. It covers about 1,000 acres of ground, large pastures, fields, orchards, vineyards and experimental grounds. The drill grounds are large and beautifully located. As level as a floor, and covered with a beautiful coat of Bermuda grass. We don't drill much. The various halls and dormitories are substantial brick buildings; they are large and commodious and mostly three stories high. They number twelve, with about twenty residences for the faculty and hands. These are well built, mostly frame buildings with from four to eight rooms.

They keep over 100 milk cows, and often make seventy-five pounds of butter a day. They have a fine creamery, large silos, and a small canning plant, natatorium, water works, electric plant, ice plant, machine shops, etc. The dining hall will seat 600 people and with its cold storage, kitchen are first class.

A few days spent with the great Texas Farmers congress, at her splendid Agricultural and Mechanical college will fully repay any up-to-date farmer or kindred callings for time, labor and money spent in making the trip. H. B. HILLYER.

Bowie, Texas.

A Wide Circulation.

John D. Abell, Tallapoosa, Ga., who recently carried a small ad in the Western Fruit-Grower, writes: "We had good results from the ad; even sent goods on account of it to the Isle of Pines, Cuba, on the south to Victoria, B. C., on the north."

How is that for returns? The advertising rate of the Western Fruit-Grower will be advanced on all contracts made after September 1, on account of increased circulation, which is guaranteed to be 30,000 for the coming year. Now is the time to contract for space.

In a letter inclosing money for three years' subscription, J. E. McMahan, Home City, Kan., says: "I would not do without the Western Fruit-Grower, and would pay several times its present subscription price rather than do without it. Every farmer in the country should take it. Your plan of listing size and location of commercial apple orchards is an excellent one, and should benefit both the buyers and sellers of fruit.

Commercial Orchard

Successful commercial orcharding depends upon the following factors:
First—Trees must be true to name.
Second—Trees must be grown on Nature's plans.
Third—Trees must be properly dug and packed so as not to lose their vitality.
Fourth—Varieties must be adapted to soil and climate before congenial environments exist.
Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.
Sixth—There must a mutual consideration of each other's interests between nurseryman and planter.
Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees of our third generation of reselects thus giving productiveness, vigor and longevity to our trees not found in the common class of trees. You are specially invited to call and see our stock and examine our bearing trees.
Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.
Agents wanted in every locality. Call on or write us for prices.
Yours for mutual pleasant and profitable business,
MISSING LINK APPLE CO.
NURSERYMEN CLAYTON, ILL

New Haven Nurseries
NEW HAVEN, MO.
Location, 67 miles west of St. Louis, on main line Missouri Pacific Railway.
We are on the market for Fall of 1902 and Spring of 1903 with over one and a half million fruit trees. They will be grown to the highest possible standard. Will book orders now at lowest prices and would advise early contracts to secure varieties and grades wanted.
A personal inspection of our stock is invited. 200,000 of our two-year Apple are all on heavy well branched whole roots, which fact enabled us the past sason in securing a good growth in spite of the great drouth of 1902.
Our Peach Trees are all budded on seedlings from native pits and trees produced are not excelled in quality anywhere.
New Haven Nurseries, New Haven, Mo

The Wolverine Nurseries
Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.
G. E. PRATER, Jr., Prop.
PAW PAW, MICH.

VINCENNES NURSERIES
W. C. REED, Prop., Vincennes, Ind.
We offer the following carlots for fall, 1902: Apple, 2 and 3 years; Cherry, 1 and 2 years; Peach, 1 year. Also good assortment of Standard and Dwarf Pear, Plum, Snyder and Early Harvest B. B. R. C. Plants, Carolina Poplar, Elm, Soft and Cut Leaved Maples, Shrubs, etc.

RIPPLEY'S Fly Remover,
Lice Killer and Disinfectant
removes flies and mosquitoes instantly. Kills lice on hogs, horses, cattle, and in poultry houses, etc. **Healing to any sore. Non-Poisonous.** Harmless to man or beast. Acts as a disinfectant; and promotes health. Don't experiment, buy a reliable repellent, which has been on the market for years. Endorsed and used by leading breeders and dairymen. Cows sprayed with it give one-fourth more milk and increase in flesh. It cures cuts and acts as disinfectant. Money refunded if animals are not protected. 1 Gal. will protect 100 cows. Write for our catalogue, it explains how $8.00 per head can be saved during the fly season by using **Rippley's Fly Remover.** Order early. Price, cash with order, 1 gal., $1.10; 2 gal., $2.00; 5 gal., $4.50; 10 gal., $9.00; ½ bbl. of 30 gal., $28.00; *Rippley's Special Compressed Air Hand Sprayers* to apply same. 1 qt. tin pump, 60c; 1 qt. all brass, $1.35; 1 qt. glass jar tin pump, 90c. *Rippley's 5 gal. Galvanized Sprayer* for applying Fly Remover on large herds and for spraying gardens and Trees, etc., $5.50; 4 gal. galvanized, $5.00; 5 gal. copper, $8.00; 4 gal. copper, $7.00. Breeders' Supply Catalogue mailed free.
Results of using Rippley's Fly Remover.
Results of using inferior preparations.
RIPPLEY HDW. CO., Box 217, GRAFTON, ILL.
Western Office, Watertown, S. D. Mfgs. Breeders' Supplies and Sprayers.

FURNAS TREES PLANTS and BULBS

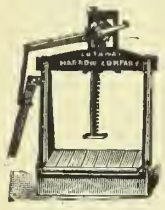
are the best to be had. Our customers are pleased and recommend our stock to others. Give us a trial order and you will do the same. Here are some of the advantages of dealing with us: Prompt, accurate filling of orders, certainty of receiving grade of stock ordered, prices that are right, careful packing, stock true to name and free from all disease and scale, liberal count and liberal extras. Free advice on all horticultural subjects.

If you are interested in fruits, flowers or vegetables, we want to get acquainted with you. We want to sell our stock, but remember, we shall be pleased to correspond with you whether you buy or not. Send for our free catalogue.

For 10c we will send 15 Grand Winter Blooming Bulbs, grand assortment; sure to give a great profusion of bloom.

Another great offer is the FURNAS WONDER BULB COLLECTION, which gives you $1.20 worth of bulbs for 60 cents. It will pay you to see our catalogue. Send for it.

Hopewell Nursery
SHERIDAN, INDIANA



SAMPSON TOBACCO PRESS

108 Barrels

CLARK'S CIDER MILLS

Clark's Double Action
Cutaway Harrow will easily move 15,000 tons of earth one foot in a day

Clark's Sulky Gang Disk Plow. From 3 to 8 feet. For horse or steam power.

CUTAWAY HARROW CO.
HIGGANUM, CONN.
Send for circulars.

1,000,000 Strawberry Plants
100,000 Raspberry Plants

Aroma, Rough Rider, Kansas, Excelsior, Parker Earle and all leading varieties. Cumberland, Munger, Kansas, Gregg and Cardinal Raspberries. Early Harvest and Snyder Blackberries.

10,000 Peach Trees
Our prices are right; send for catalogue.
ELMHURST NURSERY AND FRUIT FARM
M. E. CHANDLER, ARGENTINE, KAN.

J. H. H. Boyd, Gage, Tenn.
Dealer in
TREE and SHRUB SEEDS
Tree Seedlings in large and small lots. CATALPAS, RUSSIAN MULBERRY, BLACK LOCUST AND MANY OTHER FINE AND ORNAMENTAL VARIETIES
Would like to correspond with any one who could supply good fresh tree and shrub seeds this fall.

Can Save You Money
on all kinds of FRUIT PLANTS in large or small quantities. Wholesale and retail growers of Grape Vines, Strawberry, Raspberry, Blackberry, Dewberry, Gooseberry and Currant plants. Send us your address for price list. Satisfaction guaranteed.
ENOS W. DUNHAM & CO.
Lock Box 19 STEVENSVILLE, MICH.

Best Nursery Stock LOWEST PRICES
AT THE OLD RELIABLE
Capital City Nurseries
Established 1869. Packing and Shipping Facilities Unexcelled. AGENTS wanted.
C. L. Watrous, Des Moines, Ia.

LOOK HERE! Send 25c and get a pair of Safety Trace Holders for a wood-end single tree; if not satisfied, send them back and get your money back. J. T. HIRT, Iowa City, Iowa.

Maj. Holsinger's Department

HARVEST POTATOES NOW—It has been my custom to dig and cellar my potatoes soon as developed. Twenty years ago I heard of a Mr. Underwood, south of Lawrence, Kan., who dug and cellared his potatoes soon as grown. This was a new one on me, so I called on him and was shown 1,000 bushels of excellent tubers in good condition. He assured me his potatoes were safer in cellar than in field and that he had crop No. 2 growing nicely.

"In digging potatoes all that is necessary to insure their keeping is careful handling," said he. "That is, I never place a broken or abrased potato in the cellar with those intended for holding over. I also am careful never to put in the cellar wet tubers. Follow these rules and you will have no trouble with your potatoes keeping."

Since that time I have followed digging as soon as the tubers are about done growing. This season I varied this custom, as owing to the growing season being prolonged by the excessive rainfall, the tubers commencing a second growth, the plants being still green. I dug between showers and have a full supply in cellar and a new crop on the way which at this writing is fully knee high, promising finely. Those in cellar have been there fully six weeks and are as sound as can be, not a single rotten tuber in the more than fifty bushels. When dug only a few showed any scab—so they are free of scab, as it never develops after digging.

Now, how is it with those remaining in the ground? I know one young potato grower who tells me he has lost 6,000 bushels from rot. Many other potatos on the market show scab badly. We have been told that scab in the potato is the result of planting same ground to the potato. Now, this has nothing to do with it. Last spring I bought Red River seed, variety Early Ohio. I planted some in garden where I have grown potatoes every season the past eighteen years. I dug these first and found just a little scab. The others were planted on ground that had never known a potato. . These were dug ten days later and were much more injured than those on the old ground. Some one says: "It is the result of angle worms." Nonsense. I did think the white grub had something to do with it: I find, however, that when the white grub does attack the potato he digs into, often burying itself in the tuber. I am well satisfied with digging the spuds when matured. I know I can keep them better than if left in the ground until fall to take chances of sun scald, grubs, rot, field mice, etc.

CUMBERLAND RASPBERRIES.—June 28. We are now in position to discuss this remarkable berry. The first ripened with us the 9th inst. They are still with us and will be for several days, as their disposition to throw up secondary shoots makes them a long drawn out variety. In size the Cumberland stands first; 160 berries making a full quart. Have you ever counted berries? We have; it is the only certain means we have in determining size of berries. Of the ordinary varieties, such as Hopkins, Doolittle, etc., from 450 to 500 to the quart. You will see that the Cumberland is nearly three times the size of the old standards. It was a satisfaction while on the Kansas City market to have the berry growers crowd around our wagon to see this monster that sold from 50 cents to $1 per crate above the market. The Cumberland is a good grower, a splendid yielder, of good quality, handsome, very black, good shipper and much larger, making it the best of black caps.

APPLE BUYERS—Now the inquiry is being made by the apple buyers, where and what of the crop? Would it not be good policy to have a bureau some where that we could know something of the crop in sight, the prices to be paid, etc.? During the past the buyer would come into a community and would see Mr. A. whom he would offer one price, B another, C another; seldom any two sales being the same. One year I remember I sold my one-half of 2,000 barrels for $2,500, while my neighbor received only $1,200 for all of 2,300 barrels; while to others, $1.25 to $2.00 per barrel was paid. There seems to be no way to determine the price of apples in the orchard. It is a "go as you please."

Now, would each person having apples to offer report to the Western Fruit-Grower the same, I have no doubt but that we could arrive at an intelligent conclusion not only as to the amount of fruit in sight, but that a pointer could be given as where to sell and what to ask. In this way the grower and the buyer might be brought together. It would be an advantage to each, saving an expense to the buyer in traveling through the country in search of the fruit, while it would give the grower a "tip" as to price to ask. I have no doubt the Western Fruit-Grower will be glad to establish such a bureau of information for the mutual advantage of all concerned.

(Yes, indeed, the Western Fruit-Grower is trying to work along that line now and has published a list of growers who sent us their acreage, etc. and sent the lists to apple buyers.—Ed)

PEARS—The present is the most satisfactory season in all our past. This is true of our White Doyenne, Duchess, Bartletts, Rutter and Kieffers. Garbers, Seckel and Lawrence are only medium. Our Bartletts and Duchess dwarfs are loaded to the guards; many are, or were, flattened on the ground by reason of the fruit. Birkett has not done very much, although some limbs are quite full, but I reckon the crop at not over 10 per cent. The only blight this season is on Garber. Some of our trees are cultivated, some on uncultivated ground. Those looking the best are cultivated.

"Oh," says one, "you just wait and see what you will see."

Possibly I am not sanguine as to the future, but it does me a whole lot of good to see those trees so heavily loaded. "Sufficient unto the day is the evil thereof."

M. P. Harrison of West Virginia is in trouble over the tenant problem. What share to give to be equitable to both tenant and himself. This is a pretty hard question. We have wrestled with it the past eighteen years. My location, remember, is Kansas City; my farms lie within six miles of one of the very best markets; sales practically are daily. I go on the plan of halving the sales. I furnish the homestead, the tenant the muscle, teams, packages, picks and markets the fruit, all except the winter apples, which he packs upon the ground. I care for them as I choose. I require either daily or weekly settlements. Living about midway between the farms and markets, the tenant goes necessarily near my house and can leave my share of sales. He takes no risk in keeping the money and I none that I will be defrauded of by long settlements through lapse of memory or other cause. My farms are planted to all kinds of fruits, strawberries, raspberries, blackberries, gooseberries, grapes, cherries, plums, peaches, pears and apples. Some years it is well for both tenant and self, usually better for the tenant, for he has a home and a living whether I have or not. The tax must be paid.

There usually are many expenses that one cannot foresee. Now as to possibilities resulting from such leasing, on one of my farms that I have in mind the returns to me durng the past eighteen years run from $300 to $5,000 per year. When at the former estimate it was of course a losing game to me. The tenant still had a good comfortable home, with school, etc. He practically had a living out of the farm. When at the latter figure; as one I have in mind, he was able to buy ten acres for $1,000, and build a home of his own from this year's work. He did not have a dollar when he took possesson. I sold him team and outfit to commence with, he to pay me all sales out of the crop until I was indemnified. The sales of fruit for the first month fully repaid the $226 that I advanced and he told me he still had $75 in bank. Not bad for a poor Swede who had been only three years in this country. That year I sold my apples on the ground for $2,500.00. This farm contained 71 acres.

W. B. N., Wilson Kan., says: "I received the asparagus sent me. It has grown nicely and we are looking forward to next season when we can or shall enjoy 'grass' from our own garden. When shall I salt the bed? I want to do the very best I can for it to secure very best results."

Now, there seems to be a misapprehension in growing this splendid vegetable, asparagus. Salt is not necessary to its development. Salt hasn't in it a particle of fertility. Salt is death to weeds and by a heavy application you may keep the weeds down. I would

Do You Need Apple Barrel Stock
GET PRICES FROM
Ozark Cooperage Co.
KANSAS CITY, MO.
Postal Telegraph Bldg. Tel. 2849
We can deliver choice STAVES, HEADING and HOOPS, Liners, Nails, Tress Hoops, Tools, in matched car-lots delivered at any point.
QUANTITY—QUALITY — QUICK SHIPMENTS.
Moral—Always Get our Prices Before Buying.

Apple Seedlings
Iowa grown; grown from Vermont natural seed on new clean land, free from aphis, root gall, or any other disease. Grape vines the largest and best stock in the country. Apple, Cherry, Plum, Pear and Peach trees, Currants, Gooseberries, Raspberries, Blackberries. Send for Price List.
SILAS WILSON, Atlantic, Ia.

Knox Nurseries
We wish to call your attention to the fact that we have a fine lot of one year old CHERRY TREES for Fall delivery. We ask particularly the attention of planters to our CHERRY. They will suit you we know and will give better satisfaction than the two-year-old trees. They are not so tall as the two-year trees, but they are thrifty, stocky, well rooted from three to five feet high. We also offer Peach, Apple and a general line of nursery stock.
H. M. SIMPSON & SONS
VINCENNES, IND.

Mazzard Cherry Seed
NEW CROP NOW READY. GOOD QUALITY. SEND FOR SAMPLES AND PRICES.
Later we shall offer Seeds of APPLE, CRAB, MYROBOLAN PLUM, MAHALEB CHERRY and PEAR. Also full line of FRUIT STOCKS. Write for prices.
RAFFIA Best quality, long strands, good color and strength. We are headquarters.
THOMAS MEEHAN & SONS, Inc.
DRESHERTOWN, Mont'g County, PA.
Wholesale Department.

Choice Nursery Stock
Carefully grown and carefully dug. Fifty varieties of Apple, good assortment of Pear and Peach. Send for list.
L. F. DINTELMANN
BELLEVILLE, ILL.

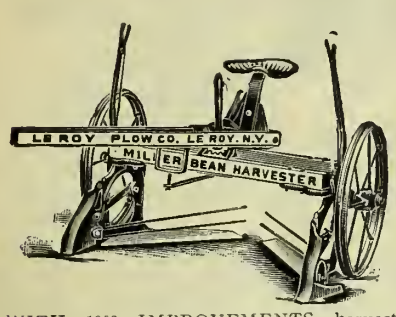
WE HAVE A **Surplus of Apple Trees**
4 to 5 feet whips and 4 to 5 feet branched; also cherry trees, grape vines, in fact a general line of nursery stock at live and let live prices. Write us. We also have a surplus of peach seed.
Southern Nursery Co.
WINCHESTER, TENN.

GOOD GRADES SELECT STOCK CORRECT COUNTS
Extra Fine Budded Apple, $5 to $7 per 100. Large stock of Peach, Plum, Pear, etc. Send a trial order. You will be treated right at
SUNNY SLOPE NURSERY
HANNIBAL, MO.

Money Rolls to Agents
that sell nursery stock from the famous GREELEY COLORADO NURSERIES, whose stock is better adapted to all localities than any others. Agents wanted in every county. Write at once for terms and territory, giving reference.

200,000 Asparagus Roots
two-years-old. Price very low. Also Rhubarb, Horse Radish, Currant, Gooseberry and Quince cuttings. Usual stock of "EVERYTHING IN SMALL FRUIT PLANTS," Strawberries, Raspberries, Blackberries, Dewberries, Currants, Gooseberries and Grape Vines. Fine stock.
W. N. SCARFF, New Carlisle, Ohio.

Miller Bean Harvester



WITH 1902 IMPROVEMENTS harvests successfully two rows at a time, SOY BEANS, COW PEAS and other similar vines, and does not shell the beans, but leaves them in a clean wind row ready to draw.

Machines and extras carried in stock at Kansas City, Mo. Write for catalogue and price.

LeRoy Plow Co., 95 Lake St., LeRoy, N.Y.

BLACK LOCUST

Eight hundred thousand at the

Orton Nursery, Kiowa. Kan.

For Fall or Spring Delivery.
6 to 12 inches, $2.50 per 1000.
12 to 18 inches, 3.50 per 1000.
18 to 24 inches, 5.00 per 1000.

Write for special prices on large lots; also for free descriptive catalogue of general nursery stock. I sell direct to planter and save you agent's profit. Replace free of charge; and prepay freight.

F. B. ORTON, PROP.

ORTON'S NURSERY, 8 miles southeast of Kiowa, Kan.

Please mention the Western Fruit-Grower when you write.

HOYT'S TREE SUPPORT

is far superior and much cheaper than wooden props. The limbs are made to support each other. Neat, indestructible, permanent.

WOODEN PROPS ARE IN THE WAY ALL THE TIME—THESE, NEVER.

We guarantee perfect satisfaction. Sent C. O. D., expressage prepaid, for $20 per thousand. Circulars. NOVELTY FRUIT CO., Watsonville, California.

LACON NURSERY AND FRUIT FARM

APPLE ROOT GRAFTS

Best and Cheapest. Whole and Piece Root, 100 varieties; also Pear, Plum and Cherry grafts. Get our prices now. APPLE TREES, 1 and 2 year sizes, 2 to 3 ft. and larger, good assortment. CHERRY TREES, mainly Early Richmond, 2 to 3 ft. and 3 to 4 ft. Cheap for early fall shipment.

H. E. ROWLEY, Lacon, Illinois.

100,000 Apple Trees (2 and 3 Yrs.)
50,000 Concord Grapes (1 and 2 Yrs.)

Besides a large and complete stock of all kinds of fruits, berries, etc. Send me your list of wants for cheap prices.

Hawkeye Nurseries

W. H. KAUFFMAN, Prop., Stratford, Iowa.

AUSTIN'S DEWBERRY

The most profitable of all dewberries. Original propagato rand introducer. Jordan Blackberry and New Cardinal Raspberry. Keep the money coming. Write for descriptive circular and prices.

J. W. AUSTIN, PILOT POINT, TEXAS

Strawberry Plants

FOR FALL PLANTING.

Now ready and for sale. Leading varieties. $1.00 per hundred.

Wm. Brown & Sons, Lawrence, Kansas

Apple Barrel Presses

We are agents for the Hynson Barrel Press, and have a full supply at all times. Write us.

Sandusky & Co., St. Joseph, Missouri

Kansas City Nurseries

Located in the center of commerce, railroad facilities to nearly every point in Missouri, Kansas and other states without change or transfers. Good first class Fruit and Ornamental Trees, Shrubs, Roses, Vines, etc. A very large assortment for the City and Country trade. Write for our eighty-page descriptive catalogue. Address

BLAIR & KAUFMAN,

233-34 Rialto Building, Kansas City, Mo.
Long Distance Phone No. 370 Main.

MOSELEY'S Fruit Evaporator

A little factory for only $6.00. For use on an ordinary cook stove. No extra expense for fuel. Easily operated. Evaporates apples, pears, peaches, all kinds of small fruits and berries, corn, pumpkin and squash. Send for circular. Agents wanted. A great seller.

MOSELEY & PRITCHARD MFG. CO.,
(Mention this paper.) Clinton, Iowa.

prefer to keep the weeds out by cultivation. Asparagus, like most other vegetables, respond to the tickle of the plow and hoe. It cannot have too much of that treatment. Give your asparagus plenty barn yard manure. It is the best of all fertilizers for asparagus. Work it into the soil and you will be surprised at the result . Don't, don't, be afraid of giving too much of either.

THOSE RESOLUTIONS—Among the numerous correspondents endorsing our position on the resolutions passed by the recent State Horticultural Society is the following from the veteran pomologist, Elder Dan Carpenter, than whose opinion we value none more. We are always glad to hear from him, for we feel assured that there is none who have the good of the Society more at stake than does Mr. Carpenter. We feel to congratulate ourselves on his endorsement. He says:

"'You have my approval on the resolution of the Missouri State Horticultural Society. Referring nomenclature to the Americal Pomological Society as the final court is all right, but as to following or waiting for results of experiments at our two stations before deciding what to plant is ridiculous. All must experiment more or less, all the time and never be done learning, but the less possible is best for profits, but not best for others; and as 'no man liveth unto himself,' so we ought to try to make our life-work beneficial to others. I spent nearly thirty years in experiments and nearly as many hundred dollars—and have just learned that I don't know anything about orcharding and that a 'fool and his money soon (easily) parted.'

"But when I began over thirty years ago, nobody here knew anything about frut or fruit growing. The Missouri Valley Society was only one or two years old and very few of its members knew much more than I did and that isn't saying much for anybody, I tell you. With all this before me, the man who wants to plant should carefully investigate the orchards nearest to him and similarly located—bottom or upland—and with similar topographic lay of the land, and then select the most profitable, as that is what all plant for and work for. Quality is not in it. Public taste (?), quantity and money—these are all of it. In the last Western Fruit-Grower I notice several things in perfect harmony with ideas I offered before the Missouri Valley Society at least twenty or twenty-five years ago. But 'line upon line and precept upon precept' have to be crowded on our people."

WRAGG CHERRIES — You are mentioned in the Missouri reports as having had this season 1,000 crates of cherries. (1) This being the case, what varieties do you plant? (2) What do you know of the Wragg? (3) Does it differ from the English Morello? An answer through the Western Fruit-Grower will be watched with interest by yours truly.—John Simpson, Des Moines, Iowa.

The cherry bearing this name originated in Iowa. It is a little later than English Morrello, resembling it very much in tree growth, color, acidity, but larger in berry and later in ripening. It is early in coming into bearing; that is, it will bear more heavily when first coming to bearing. Three year old Wraggs this season were quite full. I noticed no English Morrello that bore more than a few specimens. I consider the Wragg an indispensable variety.

FRANK HOLSINGER.

The Garden Huckleberry.

A. Wilder, Randalia, Iowa, has a new fruit or vegetable which he has given the above name, which he says is valuable. It is a fruit which looks like large huckleberries, comes from seed like tomatoes, and Mr. Wilder says when made into pies the fruit cannot be told from real huckleberries. He will send sample and seed enough for trial for 25 cents.

The Sudduth Pear Blight Proof.

Was there ever such a season for Pear Blight? The oldest inhabitant is inclined to say no. Years of patient labor and waiting are failing of their results, and horticulturists as well as others, may be pardoned when they conclude to plant no more pears. Still, the lovers of pears need not despair altogether. During a tour of observation in the vicinity of Normal, Illinois, the undersigned saw one, and only one, ray of hope. Among blocks of hundreds, yes thousands, of trees in orchard and nursery, black with blight, one variety, and only one, stood out in strong contrast to all the rest. In growth as handsome as a hard maple, bending down with its weight of frut, even in the nursery row, it stood without a rival, not a blighted leaf to be seen.

Of course it is the Sudduth. Surely Augustine & Co. may well feel proud over having introduced this remarkable fruit. We have no financial interest in the Sudduth Pear.

M. H. Hamilton, Cashier First National Bank, Normal, Ill.

W. N. Dooley, President Citizens' Bank, Leroy, Ill.

M. J. Schaeffer, Real Estate Agent, Normal, Ill.

Alex Keady, Real Estate Agent, Ex-editor of Grange News, Normal, Ill.

Dr. E. C. Hewett, Ex-Pres. Normal University, Normal, Ill.

C. W. Eyestone, Fruit-grower, Normal, Ill.

J. B. Adams, Pres. Board of Education, Normal, Ill.

C. D. Pierce, Fruit-grower, Normal, Illinois.

J. Y. Thorpe, Fruit-grower, Mountain Park, Okla.

C. S. Neeld, Postmaster, Normal, Ill.

Prof. M. J. Holmes, I. S. N. U., Normal, Ill.

C. C. Lewis, Editor Normal Advocate, Normal, Ill.

Geo. W. Bentley, Coal Merchant, Normal, Ill.

H. W. Stillhamer, Lumberman, Contractor and Builder, Normal, Ill.

Dr. Wilder, Presiding Elder, Champaign District, Normal, Ill.

O. R. Ernst, Grocer, Normal, Ill.

E. H. Cope, Leroy Journal, Leroy, Illinois.

N. H. Beckam, Leroy, Ill.

Henry Brittan, Leroy, Ill.

G. H. Coen, Druggist, Normal, Ill.

David Eaton, Fruit-grower, Normal.

— July 25, 1902.

Augustine & Co., Nurserymen, Normal, Ill., have published a complete history of the Pear which they will send free on application.

Look Here---We Want You to Try

It is non-poisonous and will not injure the hair. It is made from a basis of pure creolin (which is the healthiest live stock healing property known today), together with fly destroying chemicals.

In order that you may try it yourself and know its great worth we will sell for TWENTY DAYS ONLY, if you mention Western Fruit Grower:

Regular Price	Special Price	
1 quart can...$0.60	$ .45	Sprayer 75c extra
2 quart can... 1.00	.75	Sprayer 75c extra
1 gallon can.. 1.50	1.13	Sprayer 75c extra
5 gallon can.. 7.50	5.25	Sprayer free
10 gallon can.12.00	9.00	Sprayer free

Just as fine for horses as for cows. Will increase milk supply and save feed and worry. Flies will be bad for 60 days.

Missouri Valley Seed Co., St. Joseph, Missouri

Trees, Vines and Plants

Apple, Pear, Peach, Plum and Cherry trees in any quantity, of all the leading varieties at very low prices. Stock extra fine, free from scale or insect pests of any kind. Write for handsome descriptive catalogue and price list. One dormant bud new Liston Peach, mailed free in October to all who answer this ad This is the best and latest of all late Peaches. We have a beautiful lot of Peach trees for afll delivery and can ship by the thousand or car load. Write us for prices. Address,

VILLAGE NURSERIES, Harnedsville, Penn.

Schulze Trees Fruit

Where Others Fail. Result of

BEST WHOLE-ROOT PROCESS

Planters guids and fruit book free. Specialties: Apples, Peach, Pear, Cherry and Plum. Offer a carlot selected Seedling Peach of Elberta and Champion, etc. Up-to-date varieties. pay: Golden Ben Davis,, Black Ben Davis, Delicious, Apple of Commerce, etc. Wholesale direct to planters. Guarantee pedigree stock, true to name. .

Schulze Bros., Brussels, Ill., Deer Plain, Ill.

Imported "Malakoff" Winter Seed Wheat

50 Bu. Per Acre; Product of our own crop; grown from seed imported by us last year, from near Black Sea in Crimera, Russia. PRICE $2 per bu. here. bags free. All other leading sorts of seed wheat, both hard and soft. $1 per bu. and up. Write for free catalog, samples and descriptions. Address: J. R. RATEKIN & SON, Shenandoah, Iowa.

Apples for Sale

Ben Davis, Missouri Pippin, 1,200 Gano. Prize-winner at Buffalo. Address

J. W. CURRY, WINCHESTER, KAN.

GENEVA NURSERIES

WHOLESALE ONLY.
A full line of Nursery Stock.

Nebraska-Grown Apple Seedlings

a specialty. Correspondence invited.

YOUNGERS & COMPANY

GENEVA, NEB.

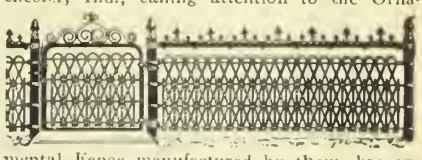
20,000 MOORE'S EARLY

Grape vines one year No. 1, $2.50 per 100; $20 per 1,000. At the Summit Nursery, Red Oak, Iowa, A. B. Elliott, Manager.

These vines are grown from cuttings taken from our own bearing vineyard and we guarantee them to be genuine and strictly first-class. Reference: Farmers' National Bank.

ORNAMENTAL FENCING.

For several months past the advertisement of the Coiled Spring Fence Company, of Winchester, Ind., calling attention to the Ornamental Fence manufactured by them, has appeared in these columns.



Many years of experience in the fence business has enabled this firm to make a fence that is not only beautiful and a credit to any property but strong and durable as well, affording best protection and requiring little attention or repair after erection.

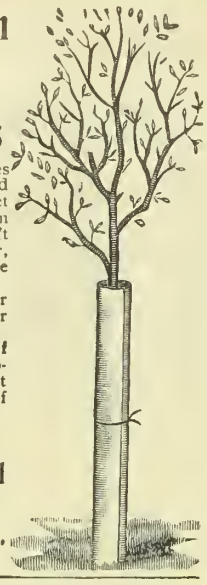
The fencing is made in many different styles and sold at prices that are astonishingly low and under absolute guarantee to give satisfaction. It will pay our readers to send for one of their large illustrated Catalogues which are free for the asking. Kindly mention the Western Fruit-Grower when writing.

108 bbls.

Val Natsiger, Sumner, Ill., sends list of orchardists in his vicinity, and says growers there would like to have buyers visit them this season. Many apples will be markcted there.

We Believe in Protection

TREE PROTECTORS



will protect your trees from rabbits, mice and borers; will also protect the stems from sun scald, and can be left on during the summer, and will not injure the tree.

The cut represents our Tree Protector after having been applied.

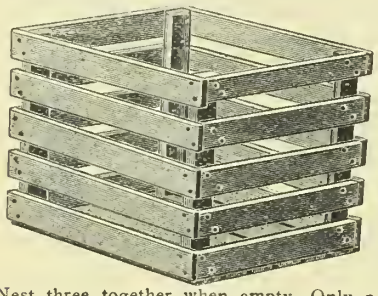
Same are made of veneer, and are pronounced the cheapest and easiest applied of anything ever used.

Write for prices.

St. Louis Basket and Box Co.

Second and Arsenal Sts., ST. LOUIS, MO.

VENTILATED BUSHEL CRATES



Nest three together when empty. Only perfect crate on the market. Price, ready to put together, $7 per hundred. Write for full particulars to

The Geneva Cooperage Co., Geneva, Ohio

200 AM. ARBOR VITAE FOUR YEARS OLD $2.00

At the above prices we will ship the above 200 lot prepaid to any office in the U. S. Order as many lots as you want, but not less than 1 lot of 200. Each customer will be sent free a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreen as are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. The American Arbor Vitae is undeniably the best all-round Evergreen for hedges, windbreaks, and screens. May be sheared to suit, tall or low, broad or narrow. ORDER NOW FOR FALL. Evergreen and Shade trees by the carload.

EVERGREEN NURSERY CO. Sturgeon Bay, Wisconsin.

To the Public

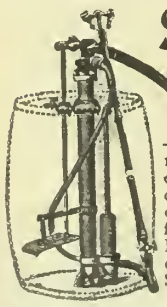
The best and safest life insurance policy you can take out is a Sudduth Pear orchard. No assessment to pay each month, your policy is paid back to you many times during your lifetime and again after your death to your family.

The propagators, Augustine & Co., Normal, Illinois, have issued a booklet on this marvel of horticulture which they will send free for the asking. They also wish to state that their catalogue of general nursery stock for 1902 is just from the printers and is free to all who desire it.

We give excellent inducements to agents to handle the Pear. Write us for particulars.

Augustine & Co., - Normal, Ill.

BUY A GOOD SPRAY PUMP



— don't experiment — costs money. We have done the experimenting — used the common spray pumps in our own orchards, noted their defects — then invented the ECLIPSE. You get the benefit of our experience free. Send at once for catalogue.

Morrill & Morley, Benton Harbor, Mich.

We Pay Freight

First class nursery stock. Prices right. Get our catalogue. A complete list of Apples, Japan Plums, Pears, Blackberries, 90,0000 Carolina Poplars, all sizes; Roses, Strawberries, Garden and Field Seeds, Seed Potatoes. Agents wanted to sell our trees. Pay commision weekly. Address J. M. T. Wright Nursery Co., Portland, Ind., Box B

Z. K. Jewett & Co., Nurserymen

SPARTA, WIS.

Sphagnum moss in car lots a specialty, both in wired and burlap bales. Quality the best.

Terracing Hillsides to Prevent Washing.

In reply to your request in a recent issue of your paper, for suggestions to stop washing of soil from excessive rains, in hillside orchards, I beg to suggest the following plan, which has proven very successful, in this and adjoining states. Owing to our open winters and extreme rainfalls during this season, soil washings are a source of much annoyance, and loss of good land. In some parts of the country cover crops sown early in the fall will make sufficient growth of root to hold the soil, but here it is not sufficient. The only absolute remedy to my knowledge is terracing. Not expensive brick and cement terraces, such as some of our wealthier friends can indulge in, but terraces which even our average southern cotton and corn farmers can indulge in, and save many an acre of good hillside now washing away. I have seen also terracing which did not carry out the end in view, but those made according to the following plan have invariably proven a success.

To commence with you must have a level, and one to do the work, can be very cheaply had. Secure two pieces of 1x6 lumber each about six feet long, nail two ends together to form a triangle, now nail a cross piece of 1x6 material across the two arms a little below the center, your work so far now appears like the letter A. Now suspend from a cord a plumb bob, or some other weighty object, fasten the end of your cord at the junction of the two six-foot pieces, allowing the weight to hang a little below the crosspiece. Set your level upright on a perfectly level surface, and the cord will give you the exact center of the crosspiece. Mark the place with a pencil, now your level is complete, and you can proceed to the hill.

Commence at the upper right hand side of your hill about four feet lower than the highest point. This may take you within twenty-five feet or twenty-five yards from the highest point, depending on the incline of the hill. Set one arm of your level on the starting point, and with the other find your level (of ground) which will be indicated when the cord crosses the mark you have made on the crosspiece. Now with a small stake, or the heel of your shoe, mark the place where you find the level. Now proceed another length, swing the level around, or merely move it forward. One arm (of level) always remains stationary where the level has already been marked, and with the other you find the next point. After you have gone around the hill, follow the marks you have made with a small plow, so when you get ready for making your terrace, the places where the land level has been found is plainly indicated. You can now proceed to the next level, the distance from where you commenced laying off the first terrace, will be governed by the incline of the hill and also the ability of the soil to absorb rains. Here where our soils are thin, underlaid with very compact clay, our terraces naturally must be closer. We allow from two to four feet fall of land between terraces. When you have decided the proper distance, proceed as before. Do not try to follow the curves of your first line or level. What you must have is the true level of the land, consequently the spaces between terraces will often vary a number of feet. After you have completed leveling off your hill, follow in the furrow you have made with the small plow, with a large two-horse turn plow, throwing the dirt to the hill. If this does not make a ridge quite high enough plow another furrow alongside, and bank up the dirt with shovels. It is usually advisable to do this work at a season when we have the least rains thus giving the terraces a chance to get quite firm before the heavy washes. It has been found advisable to sow some turf forming plant, such as turf oats, on the inner side of the ridge to bind the soil. As the water in falling on the ground gathers the soil particles it deposits them against the ridge, and in the course of time your hill will have the appearance of a mammoth stairway with steps two to four feet high. One other advantage in this kind of terracing is that instead of the water running off your hill it is compelled to deposit itself in the great reservoir the subsoil, where it will give a good account of itself in a dry spell. Care should be taken while the terraces are new that water does not break through them, and any damage from this source should be promptly repaired. PAUL C. GOETSCH.

Longview, Ala.

Strawberries in California.

After having read how strawberries are grown by readers of the Fruit-Grower in Eastern states, I want to tell how we grow them in California. We grade the ground as nearly level as possible, making rows two to two and a half feet apart, using six-inch shovels. We then set the plants on the ridge, which will be about two inches above the level. The rows have one to two inches fall to the rod. We plant from September to February, but I prefer to plant in September, for plants put out then should bear in sixty days. Put plants one foot apart in the row, and run water along the rows as soon as planted. From plants set in September we get our best winter berries which bring 15 to 25 cents per three-quarters pound boxes. Our best winter varieties are Brandywine and Excelsior. W. S. Crawford says all varieties are ever-bearing in California, but this is a mistake. Some varieties bear only two months, while Brandywine will bear ten months or throughout the entire year excepting the rainy season.

We irrigate our strawberries every week and cultivate immediately afterward. We keep all weeds down, hoeing to a very shallow depth. In irrigating each row should be filled with water, so the top roots will get wet, and the water still not flow over the plant. As long as we keep up this treatment we get good crops. With some varieties we keep all water off for about three weeks, calling the process "dryin gup" or giving them a rest. Then we give them a good wetting. This is done in August. Plants should always have plenty of water during the fruiting season, not being allowed to get dry. I believe it would be well for Eastern strawberry growers to adopt some of these methods in their work. One acre well set to strawberries here will yield from $800 to $1,200. In summer price for fruit runs down to 4 cents per box, and in winter up to 25 cents. We are in our strawberry patch the year round. About fifteen acres is the size of our little garden. In the picking season we pick over 2,000 boxes per day, six days a week. D. DALLAS.

Long Beach, Cal.

A New Early Peach.

I read the Western Fruit-Grower with a great deal of interest, and note in the July issue what is said concerning the Greensboro peaches shipped by J. H. Hale from his Georgia orchards. The Greensboro is a seedling of Connet's Southern Early, a peach which I originated in Guilford County, N. C., about twenty years ago. I now have a peach which promises to rival, if not excel, the Greensboro. Like the Greensboro, it is a seedling of Connet's Southern Early. It has all the good qualities of the Greensboro, ripens with it, is a freestone equals it in quality and excels it in size and color. It is one of the most beautiful peaches I ever saw. The tree bore its first crop this year. It was ripe July 4 to 14.

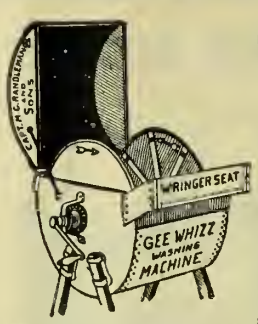
Laverne, Okla. A. CONNET.

Insecticide Fraud.

The Maine Experiment Station has issued a special bulletin calling attention to a preparation called "Kno-bug," put on the market by the Carpenter-Morton Co. of Boston. It is a reddish brown powder for which the company makes the following claims: "Kno-bug is a preparation to destroy potato bugs and all other bugs that eat leaves, plants or vines. It not only destroys the bugs but unlike Paris green acts as a vegetable tonic and stimulates the growth of the plant, prevents blight, scab and rust."

The preparation contains 87 per cent land plaster, 2.5 per cent Paris green, the remainder harmless material. It costs, the station says, about 1 cent a pound and sells for from 5 to 10 cents per pound, in proportion to size of order. This preparation is a fraud in that no treatment of vines, so far as known, will prevent scab, and there is nothing in the preparation to affect blight. The value depends solely on the Paris green contained. and in buying it one pays from five to ten times the value of the goods.

Agents Wanted To sell Nursery Stock. We pay 40 per cent to good competent men. HART PIONEER NURSERIES, Ft. Scott, Kansas.



Gee Whizz Washer

(Double Reflex.)

Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

Capt. Randleman & Sons

1415-1417 E. 18th St. Des Moines, Ia.

St Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand Typewriting Penmanship, Telegraphy and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. School in session throughout the year. Catalogue free. E. E. GARD, Proprietor, St Joseph, Mo.

Cheaper than Cornstalks

Protect Your Trees with

Veneered Tree Protectors

A positive protection against rabbits, mice, sun-scald, hot winds and barking by careless cultivation. Will last for years. Send for circulars.

$1 per 100, $6 per 1,000

10 in. wide, 20 in. long.

Hart Pioneer Nurseries

FORT SCOTT, KAN.

Wholesale Growers of Nursery Stock.

SANDUSKY & Co.

GENERAL COMMISSION

Wholesale Fruits and Produce

116 S. Third Street, and 115 Market Square, ST. JOSEPH, MO.

BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.

Established 1864.

1,000,000 Peach Trees

Tennessee Wholesale Nurseries, Winchester, Tenn.

Exclusive growers of peach trees. June buds a specialty. No agents traveling, but sell direct to planter at wholesale prices. Absolutely free from all diseases and true to name. Write us for catalogue and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest Peach Nursery in the world.

J. C. Hale, Propr., Winchester, Tenn.

GOLD IN A NUTSHELL

New Book, all about Nuts. Price, 10 cents.

AMERICAN PLANT & SEED CO.

NASHVILLE, TENN.

STRAWBERRY CULTURE By M. Crawford

The best of the knowledge gained in nearly 50 years' experience boiled down into 60 pages. A capital compendium of up-to-date practice. —AMERICAN GARDENING.

It will pay fruit growers to send for this pamphlet.—FARMER'S FRUIT FARMER.

PRICE TEN CENTS.

M. CRAWFORD CO., Box 1004, Cuyahoga Falls, Ohio

When writing to advertisers, please mention the Western Fruit-Grower. It will insure fair treatment in every case.

YOU NEED . . .

PRICKLY ASH BITTERS

THE SYSTEM REGULATOR

TO KEEP WELL IN THE CHILL SEASON

In many sections of the country the inhabitants are so accustomed to malarial trouble that they expect a spell of "Chills" every year, hence they take no steps to prevent it. This is a wrong idea. With a little care to keep the vital organs in good condition, you can escape this misery entirely. The proper course to follow is to take frequent doses of PRICKLY ASH BITTERS, and to continue its use occasionally through the sickly season. This remedy is a thorough system cleanser and regulator. It conveys a reviving influence to the liver and kidneys, purifies the blood, strengthens the digestion, and by its agreeable cathartic effect, keeps the stomach free and the bowels open for the excretion of impurities. When the system is working smoothly and the vital organs are strong the malarial germ which passes in with the air we breathe finds nothing favorable to its development, therefore it is harmless, and although there may be much exposure to the influence of his poison, the happy possessor of good digestion and regularity in the system will pass through the season in robust health.

TRY IT THIS YEAR.

It cures that "tired feeling." Removes constipation. Helps digestion. Sweetens the breath. Clears the complexion of sallowness and keeps the body in such fine condition that "CHILLS" or other malarial diseases cannot affect it.

IT IS THE WORKER'S REMEDY.

SOLD EYERYWHERE AT $1.00 PER BOTTLE,

Varying Quality of Niagara Grapes and Other Fruits.

Among many fruits, there is very little appreciable difference in natural quality. To some persons an apple is simply an apple, a peach is only a peach—the variety makes but little difference if the general quality be above a fair average. With grapes it is very different. Every one is familiar with the old Concord and the newer Niagara; with the Catawba and Delaware; the imported white grapes. the California Tokays, the wild Fox and the fine "hothouse" varieties are all recognized by sight and taste, if not all by name. Each, too, has its coterie of admirers, and justly so.

There is one fact relating to the Niagara that it is desired to bring out particularly, which is that there are two distinct qualities according to the stage of ripening. Those of the fruit that have remained long on the vines and become well developed have a peculiar, distinguishing flavor and a strong, agreeable odor; fruit picked early, though ripe, are not well developed, and the quality is really often poor, while the true Niagara flavor is lost. As a rule, the well ripened grapes have a yellowish cast. The new Campbell's Early is said to be the better for remaining long on the vines.

Some apples are noticeably different in quality. The R. I. Greening is very often poor and almost astringent; Baldwin is the same, but perhaps less frequently. Fine specimens of either are of high quality. To a certain extent, the trouble with the apples is similar to that of the Niagara grape—they are not well developed. But the non-development may not be the result of their being harvested too soon; there are other factors in the case. Overbearing or a weakening from the attacks of insects will cause an earlier ripening or an imperfect development. When will every fruit-grower learn that the best fruit is most profitable, and that it is only to be had by thorough care and cultivation?

The Seckel Pear is another instance though there may be additional trouble of another nature—namely, that the true qualities have been lost somewhere in course of propagation. But the chief complaint is against the miserably grown fruit that gets into the market—ill-shapen, undeveloped stuff that by no means satisfies the lover of this delicious variety.

The Keiffer Pear is exceedingly variable, and again depends upon the care and judgment exercised in picking and ripening. This pear may be a delicious, juicy, soft-grained fruit or it may be coarse, dry and almost worthless.

It would be disastrous to allow a Clapp's Favorite Pear ripen on the tree, as it will rot inside unawares. Picked early and ripened in the dark, it ripens uniformly and is delicious.—Meehans' Monthly for August.

Shall He Plant Fillers.

Charles W. Steiman, Dalton, Mo., writes: "I planted part of a farm in orchard last spring, with such varieties as Ben Davis, Jonathan, Champion, etc. Th land is good upland, comparatively new. Trees were planted thirty feet apart in rows thirty-two feet apart, running north and south. Now, I would like to ask, Shall I plant a filler between the trees in rows running north and south? I wish to keep the thirty-two-foot space clear for cultivation. I would like also to ask if there is danger of killing fowls to allow them to run in orchard which has been sprayed with poison? If young oats or grass should become sprayed, I should think perhaps the poison would kill the fowls which ate the grass."

As to the latter query, will say there is little likelihood of the fowls being killed. Prof. Smith of New Jersey pastured his horse under some trees which had been thoroughly sprayed, and with no bad effects—and the horse would eat more grass than the fowls. As to the fillers, that is a debated question. We have heard the matter discussed pro and con, but opinions still differ. H. E. Van Deman says the danger is that the man will not have the nerve to cut out the fillers when they begin to crowd, and in this case it were decidedly better that the fillers never be planted. We believe the general consensus of opinion is against fillers. By "fillers" we suppose is meant varieties of apple such as Missouri Pippin, which bear early. If peach fillers are meant, then the testimony is overwhelmingly against the practice.

We would like to hear, briefly, from several of our readers who planted fillers and who cut them out at the proper time. What is your opinion of the plan, now that you have practiced it? Did the fillers appreciably interfere with the permanent trees? When did you cut them out, etc.? Let us hear from some who have been along this road.

Nursery Catalogues

Now is the time to begin to think about and to plan for your next season's catalogue. A good catalogue is your best salesman, and good work costs no more than cheap, slipshod printing, if it is done at the right place.

The Western Fruit-Grower printed many very neat catalogues last season, and is better prepared this year than we were a year ago. Let us figure with you on your catalogue, as well as all other printing, and we may be able to not only save you money, but give you better work than you have had heretofore.

We have some new ideas in catalogue printing which we will be pleased to explain to those interested. Write us for prices on any kind of printing.

It takes time to prepare and print a good nursery catalogue—begin now, take the matter up with us at once, and let us help you get out a good one for next season.

WESTERN FRUIT-GROWER

ST. JOSEPH, MISSOURI.

NO MORE CABBAGE WORMS

And no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both, and it is cheap. Each recipe 50c. Address JOHN KLENKE, 412 West Homestead, Pa.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower:

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia....	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines...	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison.....	.75	1.00
Poultry Farmer, Des Moines.....	.50	.70

Give name and address plainly in each case.

WESTERN FRUIT-GROWER.
St. Joseph Mo.

Notes from the Field

A. J. Murray, Gatesville, Tex., sends two new subscribers as the beginning of his campaign as a member of our "One Thousand Club," and says: "I think the Fruit-Grower is the best paper I ever saw, notwithstanding Farm and Ranch is hard to beat."

Now, those who know what a good paper Farm and Ranch is will appreciate all the more this compliment.

"We cannot do business without the Fruit-Grower, so just send it on until we order it stopped. I am trying to get my neighbors to subscribe, for the paper will save them many dollars in the course of a year" That is what J. H. Brown, Ipava, Ill., says when he sends in a new subscriber with his renewal.

Wm. B. McGuire, Makanda, Ill., sends $1 for three years' subscription, in advance, and adds: "I recognize the Fruit-Grower as being one of the best of its kind. It has made me several thousand dollars by closely observing its columns, within a very short time. Have followed instructions in caring for orchards and spraying apples, etc. Have prospects for a full 80 per cent crop of apples this season, and quality is extra good. Quantity is estimated at 10,000 barrels, principally Winesaps, General crop in this vicinity is estimated at 50 per cent. Sprayed fruit is good and unsprayed fruit poor, as a rule."

We would like for more of our readers to join our "One Thousand Club" before the season for county fairs arrives, for that will be a good time to get new subscribers.. The "One Thousand Club," as most of our readers know, is composed of those who will agree to get at least five new subscribers before the first of the year at rate of five for $1. This wil add 5,000 new names to the list, and we urge all to have a part in this work. It will mean a better paper during the next year. We know there is not a reader who cannot secure at least five new subscribers at this price. To each one who sends the five names we will send, with our compliments, a copy of M. Crawford's book on Strawberry Culture. If you will join the club, send your address, and we will send you five coupons, so you can send the names one at a time if you like. The coupons will be numbered, so we will know when your five names have been received. Don't neglect this, but send your address to-day if you would help to build up a fruit paper which shall stand at the head of all agricultural publications. We have heard from many readers, and want to hear from more.

Bitter Rot of Apples.

This disease has broken out in some of the orchards of Southern Missouri and Illinois, and in some sections is said to be doing considerable damage. Trees in the infected district should be thoroughly sprayed with Bordeaux mixture at once. The applications should be made every two weeks. The Ohio station recommends the soda-Bordeaux mixture for this purpose.

In connection with the announcement of the presence of this disease in southern orchards, the statement of Mr. R. A. Simpson of Vincennes, Ind., to the effect that he has discovered the host of bitter rot spores, is of interest. Mr. Simpson is a very careful orchardist, and is well acquainted with the disease of bitter rot, having helped to conduct some experiments with the disease for the Illinois station. Mr. Simpson's views are attracting considerable attention, and doubtless other reports will shortly be made on the subject. He says:

"This part of the country has been bothered by bitter rot for the past two years, and last week it began showing up again, so I determined if it were possible, to locate the starting point. I have been closely observing it before, and so this year, after looking over all my previous notes, I started in an Illinois orchard to see what could be found. I first noted that the rot was showing up on the same trees it showed first on the past two years and that it was on the identical limb. I kept on and every place it appeared, with few exceptions, was where it had been years previous. I then noticed that there were more affected apples near the ground and as I went up the affected fruit came to a point apparently and the whole affected area seemed to have the appearance of a cone. This led me to believe that the starting point must be just above the apex, but after careful looking I could find nothing. I then concluded I was looking too high for the mark and began examining a little below the apex and there I found the gold—the long sought for trouble. There I found a blackish brown, blighty appearance on the limb and which has since been pronounced 'canker.' The search was becoming exceedingly interesting and I thought surely this is the trouble. I then went to every place where the cone-shaped affected apples were found, and in every one of them found this canker in almost the same position. In this the spores of the bitter rot were found, which was proof that I was right. I also found the oldest and largest spots of rot were on the side of the apple facing this blighted spot and those immediately under at one side of it. After a little practice it was no trouble for me to go to a tree with affected apples and trace the location of the blight by affected fruit, as the rot was always on the side of the apple pointing toward the blight. A short time prior to the appearance of the disease this year we had heavy rains and these rains washed the spores, which are of an adhesive nature, down over the fruit and thus the infection. From all observation I can make it is doubtful if the wind will carry them. Then, too, after these rains the weather was hot which made ideal propagation conditions. I am sustained in all I have said by Prof. J. T. Burrill and J. C. Blair of Illinois State University..

"The remedy is to remove all the canker spots by sawing off the limbs, and then picking off all the apples below, both good and bad, and burning them at once. Do not be afraid to pull off enough apples, as you had better waste a few rather than leave any affected ones there. It takes very careful examination of a tree to get all those spots and you must get up into it and look over every branch, even if no apples show infection. The remedy is effective in proportion to the number of spots which you remove, as every one overlooked is ready for business at the next shower. Every tree which has shown a sign of the rot should be carefully examined at once. This has a great advantage over spraying, in that it will save future crops as well as the present one, and then it is much cheaper."

T. H. Todd, New Franklin, Mo., estimates that he will have 3,000 barrels of very fine apples. One other large orchard in neighborhood. He wants a buyer.

Have you joined our "One Thousand Club" yet? If not, do so at once. We have received many names of those who will help increase our circulation by getting at least five new subscribers by the first of the year. You can easily get this number. Send to-day for the coupons.

J. W. Robertson, Elm Grove, Mo., reports that his twenty acres of orchard will yield about 1,000 barrels of apples; J. R. Milne, near him, has about the same quantity of fruit, and Mark Cordrey and Foster Bros., also have a good lot of fruit. Shipping station is Forbes, Mo. Fruit is said to be first-class, and buyers are wanted to visit that section.

A. C. Austin, Angus, N. M., reports that while there are no very large orchards in that section, there are some very nice ones, and that perhaps ten cars of very fancy apples can be secured there. Varieties are such as White Winter Pearmain, Yellow Bellflower, Newtown Pippin, Winesap, Rome Beauty, etc Buyers who want fancy table fruit will do well to write Mr. Austin.

If you have a supply of potatoes, don't be in a hurry to sell them. It is believed prices will be well maintained this season, for the crop has been seriously damaged in some sections. In Vermont the vines are blighted badly, and the crop will be seriously injured by this disease. In the Middle West the crop is heavy, but the shortage in some other sections will make the tubers in demand.

E. C. L. Larch, Savannah, Mo., experimented a little last spring in spraying for canker worms. He left a few trees untreated, and could easily see what would have been the condition of his orchard if none of it had been sprayed. Mr. Larch uses the arsenate of soda, and can kill canker worms as surely as one can kill a man by giving him poison. Mr. Larch is a firm believer in nurserymen selecting scions only from productive trees of each variety. He says he has one Ben Davis tree which has not failed for a number of years to bear heavy crops of fruit, while in the same orchard, on same soil, with same treatment, are trees of the same variety which have not borne even one profitable crop.

S. L. Miller, Penrose, Utah, some time ago sent five new subscribers, and said: "I have seen some of the largest fruit-growers, and think they will be pleased with the Western Fruit-Grower, as it is the best fruit publication I ever read. Some of the single issues are worth the subscription for a single year, which I think is very low for such a paper. None of our orchards are over eight years old, but they yield fine fruit. Prices for fruit were way up last year, choice apples yielding $2.50 per bushel box. Apples have not sold for less than $1 per box at any time within the last five years—that is, apples free from worms. Those who spray their trees and keep fruit free from worms get about twice as great prices as are received for unsprayed fruit. Irrigation is the only thing that makes the inter-mountain country a good fruit section."

Apple Shippers' Convention.

The eighth annual meeting of the American Apple Shippers' Association opened in Rochester, N. Y., on Aug. 6, with a large attendance. A number of matters came up in which apple growers are interested as much as are the buyers of the fruit.

The old officers were re-elected, as follows: President, Walter Snyder, Baltimore; vice-president, Charles H. Weaver, Chicago; secretary, A. Warren Patch, Boston; treasurer, W. L. Wagner, Chicago; statistician, B. W. Snow, Chicago.

In his address President Snyder made a number of recommendations, among them being one to report probable crop of apples at so many barrels instead of a certain percentage of full crop. The difficulty with the latter plan, he said, was in not knowing just how many trees were in bearing.

He took for example the crop of 1896. The number of trees in bearing at that time produced 69,000,000 barrels. Considering the increase in trees during the intervening six years if all bear as heavily this year as in 1896, the crop will approximate 80,000,000 barrels. Therefore radiating from the first figures we would estimate 50 per cent of a crop at 34,000,000 barrels, when 40,000,000 barrels would be nearer the mark.

R. I. Graham of Belleville, Ont., read a paper on "Transportation," which is so interesting from the standpoint of the growers who handle their own apples, we will publish it in full later.

Professor J. C. Whitten of Missouri sent a paper on the subject of shipping American apples to Europe, in which he recommended only the very choicest fruit to be shipped.

One of the matters recommended, which will probably be favorably acted upon, is for the association to organize a crop-reporting bureau, which shall receive estimates of the probable apple crop all during the season. This bureau is to furnish the information to the members of the association only. The plan is very similar to that which the Western Fruit-Grower is trying to inaugurate, except that this paper wants to have the reports for the growers, who are as much interested in the size of the apple crop as are the buyers.

In our fruit reports in this issue we publish the estimate of the size of the crop as made by the association. There seemed to be a general feeling that buyers will have to be more careful than they were a year ago, and that prices will rule lower.

A number of papers by Prof. Stinson of Missouri, Prof. Beach of New York and others were read; Niagara Falls was selected as the next place of meeting, and the convention adjourned.

THE WEBER JUNIOR 2½ HIGH POWER WEBER GASOLINE ENGINES AND PUMPERS.

We illustrate in another column a pumping engine recently put on the market by the Weber Gas & Gasoline Engine Co., box No. 1115, of Kansas City, Mo. The exclusive business of this Company, for the past sixteen years, has been the building of gas and gasoline engines and their "WEBER JUNIOR" has a world wide reputation. The "WEBER JUNIOR" (which they have christened their little engine) has only been on the market during the past year, and its phenomenal success has caused the Company to largely increase their manufacturing facilities at their new plant in Sheffield.

The "WEBER JUNIOR" pumping engine is especially designed for pumping, grinding, operating churns, wheat fanning mills, grindstones, in fact all light machinery about a farm or ranch. These little engines are in use from Maine to California and from the Northwest territories to Yucatan.

A novel feature in this little engine is that it is shipped from the factory crated up with all the necessary water and gasoline tanks, pipe fittings and fixtures attached all ready to bolt down and go to work. There is no erecting for the purchaser to do, and it is unnecessary for him to employ a skilled mechanic to set the engine up. Full instructions accompany each engine for setting and operating.

A remarkable feature in this engine is, that parties who only need one horse power will find it to advantage to purchase the Weber 2½ as the engine can run at slow speed and will last longer, require less repairing, cause less trouble and, last but not least, will use less gasoline doing the same work than a one horse power would use.

The crowning triumph of this little engine is its exceedingly low price. In the Weber Company's factory a department is especially set aside for the exclusive manufacturing of this one particular engine and they are built in very large quantities and, by the use of special machinery, dies, gigs and templates and by building the engine on the absolutely interchangeable plan they have decreased the cost of production so that they are enabled to sell the engine to the user at a very modest price and still reserve for themselves a fair profit

Full printed matter describing this little engine will be sent upon request to the Company.

Every farm and every ranch, in this age, should have one of these little engines. They are largely replacing the wind-mills owing to the fact that a wind-mill is not reliable and the little gasoline engine is. With this engine on each well you have a guaranteed supply of water limited only to the capacity of the well regardless of whether the wind blows or not. If you have wind-mills, this engine can be run in conjunction with the wind-mill, using the wind-mill when the wind blows and the engine during a calm. It is just exactly like having a fire insurance on your dwelling to have one of these engines attached to your wind-mill pump.

Hot weather saps the vital energy and makes the hardest workers feel lazy. To maintain strength and energy use Prickly Ash Bitters. It is the friend of industry.

Indian Territory.

For a descriptive pamphlet, free of cost, of that beautiful new country, and its prospective opening, write

GEORGE A. McNUTT,
D. P. A., M. K. & T. Ry.
Blossom House, Kansas City, Mo.

Home in Wonderful Texas.

The great state of Texas offers homes for a multitude of people who may be seeking new conditions, and new fields of operation. The vast expanse of magnificent agricultural lands makes cheap homes possible, while the wide range of products provides a certainty of profitable occupation. The wonderful Coast Country, now in the public eye by reason of the remarkable developments in rice and oil, offers splendid opportunities to the homeseeker. The Southern Pacific-Sunset Route traverses the entire producing territory. Send for literature to any agent of the Southern Pacific--Sunset Route, or to S. F. B. MORSE, Assistant Passenger Traffic Manager. Houston, Texas.

Tourist Car Line to San Francisco.

The Missouri, Kansas & Texas Ry's tourist car now leaves Kansas City Union Depot every Thursday at 9:45 p. m. for San Francisco, via Ft. Worth, Waco, San Antonio, El Paso and Los Angeles.

For further information write to

GEORGE A. McNUTT,
D. P. A., M. K. & T. Ry.
Blossom House, Kansas City, Mo.

Keep your vital organs in good condition if you would have health through the malarial season. Prickly Ash Bitters cleanses and strengthens the stomach liver and bowels, and helps the system to resist disease germs.

"Malakoff" Winter Seed Wheat.

In another place in this issue will be found the seed wheat advertisement of J. R. Ratekin & Son, of Shenandoah, Iowa. Messrs. Ratekins are among the leading seedsmen of this country, and have for many years made the testing and growing of all the newer and best varieties of seed wheats one of their leading specialties. Last year alone they sold something over 20,000 bushels of their famous "Turkish Red," besides large quantities of other varieties. Their Malakoff wheat they are now offering for the first time, was grown by them this past season, from imported stock, from Crimera, in Russia, and they say it has proven one of the best and greatest varieties they have ever before introduced. Their seed stock, including freight, duty, etc., etc., cost them last year the net price of $3.55 per bushel, but they say for crop purposes alone it is a handsome investment as it is iron clad and it is as natural for it to thrive and do well as it is for weeds to grow. It is a hard wheat, and is among the hardiest varieties grown. For full descriptions, prices etc., write them a postal card and receive catalogue free.

A GUARANTEED CURE.

The Wilbur Seed Meal Co. of Milwaukee, Wis., make an announcement on page of this paper in regard to their Heave Cure. Although the papular opinion has all along been that heaves cannot be cured, they have already proved that such is not the case and present some very strong testimonials from reputable horse men proving their claims. The Wilbur Seed Meal Co. show their faith in their remedy by offering to refund your money if it does not do as they claim. This company has been in business for nearly a quarter of a century and holds an enviable reputation for honest and fair dealing.

A very great deal of annoyance would be saved to farmers who have dairy cows if they would avail themselves of some such approved means of removing flies from animals as the Rippley Fly Remover advertised in our columns. It is so simple and easy a remedy, and avoids such an intolerable nuisance, and is so inexpensive withal, that we cannot help wondering why its use is not more general. Wherever it is used the universal testimony of dairy people is that they would not be without it. It not only adds to the comfort of animals and attendants, but its use quickly shows in the largely increased flow of milk, resulting from the repose and saving of energy which the animals enjoy. The Rippley Company is an old reliable house, enjoying a good reputation for handling good articles, which has been added to by the preparation above mentioned. Readers who are not already using the Fly Remover should put themselves in the way of a good thing by looking up this advertisement and writing to the Company. Kindly mention this paper.

Look out for malaria. It is seasonable now. A few doses of Prickly Ash Bitters is a sure preventive.

Poultry Department

LOOK TO THE MOULTING FOWLS.

As the season of the year comes around when the annual loss of feathers occurs among the laying hens more than usual attention should be given to their delicate condition. The best prepared and the best disposed hen then declines to offer so much as a solitary egg to her owner. She evidently misses her dainty dress and is partially clothed and dispirited and drooping, the poor creatures hardly understands herself.

But we know that with the necessary feed and care for making feathers we can help to tide her over the "evil days" upon which she has fallen.

Without making a careful analysis of the constituents of feathers we know that they smell enough like animal flesh when burning, to convince us that the makeup of the two are nearly alike and what serves for the one must also furnish the material for the other.

It is safe therefore to give her light feeds of corn meal, wheat, milk and meat.

Some tincture of iron put in the drinking water will also give tone and vigor to the system, and if no tincture of iron is handy, place in the fountains some rusty nails.

GRAIN.

Oats and barley have their virtues in our estimation, but fowls are not fond of these grains. In fact they will seldom eat a grain of oats or barley if they can get corn. A good share of the feed of breeders should be oats. We would advise never to feed more than one kind of grain at a time. There is nothing better than corn in cold weather.

Without corn for fattening we would be at a loss to accomplish our purpose, and it is a well known fact that there is nothing that will produce as fine a flavor as corn. While corn is so valuable as a fattener, as well as a most excellent winter food, in connection with other foods, to enable stock to withstand the cold. It is not a good feed to give to breeders exclusively to induce them to lay well, for it induces an undue secretion of fat, and fatty matter on the ovaries to the evident detriment of egg production.

Do not fail to plow the poultry yards and seed them bountifully with corn and oats. Both corn and oats grow rapidly during the warm weather of August and furnish fine green feed for the birds.

QUESTIONS AND ANSWERS.

Q.—Would a White Rock cockerel crossed on a White Wyandotte female make a good bird for meat and eggs?

A.—No doubt both would be good, but we have experimented with neither. But say! Why do you wish to cross? Each in its purity is good enough for us.

Q.—Is there any way of determining the sex of eggs before they are hatched?

A.—We answer briefly.. No.

Q.—What is the amount of food consumed by a fowl for one year, when kept in confinement?

A.—We believe the general estimate is the equivelent of a bushel and a half of corn per bird for a year.

Q.—I kept 200 S. C. White Leghorns the past winter. They roosted in an open shed last winter and some of them had their combs and wattles frozen badly. Is this the reason they do not lay as well as the others?

A.—A man having his toes, ears and nose badly frozen would not be expected by an ordinary man to continue his usefulness for some time to come. You are suffering now from lack of thoughtfulness in not providing suitable winter quarters for your birds and you must not expect the poor birds that have been frost bitten to do very much in the way of egg production. This is certain.

PRACTICAL POINTERS.

When the hens take to eating eggs, you take to eating hen.

Do not let the harvest time with its manifold duties cause you to neglect your birds. A few days' neglect just now may spoil a whole spring's hard work.

If the little summer chick stands around with his eyes shut, sleepy headed, when he should be pert as a cricket, you may be sure lice is the cause of it. Grease the heads and keep the little fellows out of the morning dews.

Try placing camphor balls in your nests and then examine for lice.

Are you absolutely sure that your poultry houses are free of lice?

A teaspoonful of turpentine in a pint of warm water is a good remedy for gapes.

Chicks are hatched clear of lice. The lice on them always comes from the hens.

Air slacked lime freely dusted everywhere is cheap and will destroy lice, gapes and roup.

Isn't it hot? The level headed poultryman early in the season or last fall purchased trees for his poultry yards.

You need not feed much grain this time of year and this of oats and wheat. Attention should be paid to the shade question from now on.

Next to improperly constructed brooders and lice, sloppy corn meal kills more chicks than the average grower has any idea of.

The up-to-date farmer has abandoned the common barn yard fowls and taken up the raising of thoroughbreds because he can see in them greater profit and greater pleasure.

"Biddy" has a forte for catching curculio and as plum culture is dependent upon the destruction of this pest the keeping of poultry and the growing of fruit are synonymous.

Now is the time of year to use a plentiful supply of good whitewash inside of your buildings, coops, etc., put in this some crude carbolic acid, mixing the wash often when appliyng.

The one great error made by farmers is the keeping through the long fall and winter months too large a number of useless birds. Old cocks not needed for breeding, hens too old to lay or pullets too young.

Hen manure is a very valuable fertilizer and should be carefully saved. Mix it with twice its bulk of dry dirt, adding some land plaster, say a gallon to a bushel of the mixture. Keep it in a dry place.

With the utmost care in regard to feed, growing chicks will sometimes have indigestion. Some fine charcoal should be kept within their reach all the time. If they have a sufficient supply of fine grit they will need less of the charcoal.

Farmers have a need for more good poultry. Not those birds that cost him from $15.00 to $40.00 apiece, but such as will improve his stock at a less price. A rooster that will cost him from $1.00 to $1.50 will improve his stock another year and increase his egg production materially.

We advise again not to feed soft feed to excess at any season of the year to either old or young stock. Remember nature provides a fowl with a gizzard, whose object in life is to grind grain in the natural state and to reduce to food materials that are requred for the growth and welfare of the birds.

In this age of the world no one is losing sleep because women are handling poultry on their own responsibility. We do not say women are not capable of managing plants. This question needs no apology. A great many women can take a flock of hens and outstrip their husbands in making money (in proportion to the money invested) from their 150 acre farm.

Failures in poultry raising generally arises from the attempt of keeping them in large numbers. It is a very easy matter for one to own and keep healthy a few hens and they be very remunerative indeed for the small amount invested, but when it comes to raising poultry on a large scale, it is quite a different matter. There are in the business essential details necessary that are only known and can be performed by those who are experienced and the first steps therefore should be gradual.

Let us imagine a fruit farm upon which is grown apples, peaches, raspberries, strawberries, blackberries, etc., in fact any kind of fruit. In the first place no sensible fruit grower will expect good results unless he keeps his orchards of standard trees free from insects.

If partition fences are made, which can be cheaply done with two-inch wire netting, the poultry can have the run of the orchard without injuring the fruit in any way. The birds are beneficial rather than an injury.

Inbreeding has closed up more poultry enterprises than any other agency. It has caused far more doctoring than any other cause. W. P. LAIRD.

Colorado Summer Meeting.

The first midsummer meeting of the Colorado State Horticultural Society held in Boulder July, 23-24, was a great success. In the court house was shown a fine exhibit of raspberries, blackberries, cherries, apples, plums, etc. The morning sessions were devoted to papers read by J. S. McClelland, Charles L. Parsons, O. D. Shields, George Knifton and others.. On Wednesday afternoon the session was held in the orchard of W. L. Scott where tests were made with spray pumps, with the Gould, Pomona, Deming Century, Deming 350, of the iquid pumps and the Hillis, Cyclone and Legget of the Dust sprayers.

W. S. Haswell, who is a Denver chemist owning an orchard in Delta county, convinced those present that he has found the secret of eradicating the codling moth. He used the following formula: One and one-fourth pounds of white arsenic and four pounds of sal soda dissolved in one gallon of hot water. Simmer till clear. Take one-fourth of the amount to one barrel and add five pounds of freshly slaked lime to a barrel holding fifty gallons. He places great stress on the point of spraying just as soon as the blossoms begin to fall, having the nozzles high enough over the limbs to throw the poison into every calyx. To make doubly sure that every apple has a dose he sprayed a second time very soon after the first. He rightly claims that the white arsenic is one-fourth as expensive and four times as effective as Paris green. Nearly all the fruit-growers present coincided in the opinion that the time has come to discard Paris green entirely.

On Thursday afternoon the meeting waws held in the orchard of Charles L. Parsons. Hon. J. H. Crowley gave an extended talk on the irrigation of an orchard, whch was followed by an extended discussion of the various devices for controlling the flow. Some use a lath fuller at the head of each furrow, others a plank with auger holes stopped with corncobs, while one grower has had galvanized gates with slides placed in his orchard. Winter irrigation was commended as necessary to assist trees in carrying their fruit buds to fruition.

W. S. Coburn gave a practical talk on pruning, demonstrating his theories from the various varieties in Mr. Parson's orchard.

Hon. W. H. Barnes, Secretary of the Kansas State Horticultural Society was a welcome guest and gave many suggestions on the topics under discussion that were greatly appreciated.

C. W. Steele, one of the pioneer fruit growers of the Grand valley on the Western Slope, detailed the practical workings of one of the best organized fruit growers' associations, which is able to control markets and prices to the great benefit of its members. E. T. Carr, agent for the Boulder association, said that the prime requisite in marketing fruit is to pack it in such manner that it will reach the consumer in perfect condition. If poor packing is done it not only reacts on the shipper but the whole association as well.

The resolutions committee reported in favor of having several meetings next summer in different localities of the state and this will probably be done.

Prof. W. M. Beardshear, president of the Iowa Agricultural College, died on the morning of August 5, after a lingering illness. Prof. Beardshear was one of the best educators in America, and was exceptionally well qualified for the position which he held. His loss will be felt not only in Iowa, but in educational circles everywhere.

AN ENLARGED BUSINESS.

The well-known firm of Thomas B. Meehan & Sons, Germantown, Pa., has incorporated under the firm name of Thomas Meehan & Sons, and has established wholesale headquarters at Dreshertown, Pa., 18 miles from Philadelphia. This firm has long been known as one of the best in the country, and the change to Dreshertown was made to accommodate the increased business. In this issue the firm has an advertisement of Mazzard cherry seed, fruit tree stocks, raffia, etc. We commend the firm to all our readers wanting anything in its line, and guarantee the best of treatment. When writing the firm address Thomas Meehan & Sons, Dreshertown, Montgomery Co., Pa

W. F. Dixon, Netawaka, Kan., reports that he will have over 1,000 barrels of No. 1 winter apples and will want a buyer for same. His son W. F. Dixon, Holton, Kan., will have several thousand barrels more, which he reports are in first-class condition.

W. D. Baker, Rogers, Ark., has invented a process which, is claimed, will make possible the shipment of fruits without ice for long distances. Recently a car of peaches was shipped from Texas to Chicago, and the fruit arrived in splendid condition, without an ounce of ice.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT GROWER.
St. Joseph, Mo.

FOR SALE—Ozark fruit farm of 80 acres. One and one-half miles from good railroad town of two thousand population. Sixty acres in cultivation, well fenced with board and wire. Three thousand apple and peach trees, half of which beginning to bear. Also pears, plums, cherries and small fruits.

Three never failing springs, and good well at house.

Six-room modern cottage, stable, two poultry houses, yards, etc. Other business requires all our attention. Address Mountain Grove Nurseries, Mountain Grove, Mo.

FOR SALE—15 acres orchard, nursery and garden land one mile from town of 3,000 inhabitants. Ten acres young and bearing trees, mostly winter apples. Great variety of fruit, nut and shade trees, berries, etc. 10,000 trees and plants in stock. Never failing water at house and barn. Six-room house, barn and cow house. Grafting house with cellar, wood house, horse, wagon, harness and implements. Good chance for nurseryman or gardener; $3,500. Riverside Nursery, box 23, Grant's Pass, Oregon.

A fine farm of 65 acres, with good 6-room house and large new barn and other improvements. Good soil; seven acres 12-year-old Ben Davis apples, in full bearing; about 500 4-year-old trees and 500 two years set. This farm is offered at a bargain for $3,300.

A fine farm of 200 acres with good improvements for $36 per acre. Write quick to Dr. G. R. White, Greenville, Ill.

FOR SALE OR TRADE—Gasoline engine, with pumping jack. For particulars, write to W. W. Scofield, Clay Center, Kan.

WANTED—A good, large stock farm in Missouri; would like it best in Polk County. Address A. W. care Western Fruit-Grower, St. Joseph, Mo.

WANTED—A single man to work on fruit farm and do general work; steady work the year round: for particulars, address William Booth, Winchester, Kansas.

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HALF RATES Round Trip, (plus $2.)
To Sandusky, Columbus, Toledo, Cincinnati, Indianapolis, Louisville and many points in Illinois, Indiana, Ohio and Kentucky. Tickets sold Sept. 2nd, 9th, 16th, 23rd.

LESS Than half rates
to Washington, D. C., and return. Tickets sold October 2nd, 3rd, 4th and 5th.

HALF RATES Round Trip.
To Buffalo, Toronto, Niagara Falls, Pittsburg, Detroit, Cleveland, Columbus and many points in Michigan, Indiana, Ohio, Pennsylvania, West Virginia and Kentucky. Tickets sold Oct. 2nd, 3rd, 4th, 5th.

HALF RATES.
Boston, Mass., and return sold Oct. 6th, 7th, 8th, 9th and 10th.

Long Limits and stopovers allowed at Niagara Falls and Detroit on above tickets.

Only one business day en route Kansas City to New York and Boston via WABASH train No. 8; leave Kansas City 6:15 p. m. daily arrive New York 7:45 a. m. and Boston 10:30 a. m., second morning.

For rates and all information call at Wabash New City Office, 1601 Farnam St., or write Harry E. Moores, Genl. Agt. Pass. Department, Omaha, Neb.

Farming in Colorado Utah and New Mexico

The farmer who contemplates changing his location should look well into the subject of irrigaton. Before making a trip of investigation there is no better way to secure advance information than by writing to those most interested in the settlement of unoccupied lands. Several publications, giving valuable information in regard to the agricultural, horticultural and live stock interests of this great western section have been prepared by the Denver & Rio Grande and the Rio Grande Western, which should be in the hands of all who desire to become acquainted with the merits of the various localities. Write S. K. Hooper, G. P. & T. A., Denver, Colo.

JAPAN WALNUT TREES
Hardy as an oak. Postpaid 35c, 4 for $1. Strawberries, Red and Black Raspberries, Blackberries. Send for prices on large lots. A. Y. CATHCART, Bristol, Indiana.

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Covered Grand Stand Free. Teams and Horses Admitted Free.
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Bill all shipments in care of W. T. VAN BRUNT, Secretary, and there will be no switching charges on account of switching to fair grounds.

EXCURSION RATES ON ALL RAILROADS.

W. T. VAN BRUNT, Sec'y and Treas.

Grand Junction Fruit District.

Having recently visited the fruit district of Western Colorado, and noting conditions in that locality I will endeavor to give the Fruit-Grower a brief description of Mesa County's fruit prospects.

In going to Grand Junction I took the Denver & Rio Grande through express train at Canon City. There is but one other road running to that point, but almost everybody travels over the Denver & Rio Grande railway, the pioneer road of the state, and the building of which has done more to develop the various resources of Colorado than any other half dozen agencies.

Crossing the main range of the Rocky Mountains at Tennessee Pass, about fifteen miles west of Leadville, one is soon on the down grade of the western slope, the waters at Tennessee Pass plowing west into the Gulf of California. Going down the mountain slope thence through beautiful Eagle valley until Glenwood Springs is reached, where the valley of the Grand River begins. At this point we are seventy-five miles from Grand Junction, but here almost at the foot of snow-capped mountains begins the Grand Valley fruit district. One passes an orchard here and there—thrifty young orchards too to be growing at an altitude of 6,000 feet. The valley being narrow affords only a limited amount of farm land between Glenwood and Grand Junction, but at a point twelve miles east of the Junction City the valley widens and affords one of the largest bodies of fruit and farm lands in the state, merging from the narrow valley through which we have traveled for seventy-five miles. We are now in the Palisade peach belt, just twelve miles east of rand Junction. Palisade has the reputation of producing the finest peaches, apricots, cherries, plums and California varieties of grapes grown in the state, and it is also said of this district it does not have "off years."

All orchards this year are looking fine. There are some big stories told about the value of fruit produced at this point. For instance, it is said that John Oliver who owns an eight-year old orchard, twenty acres, sold, when it was six years old in one season $11,000 worth of fruit.

Arriving at Grand Junction a partial tour of the district was made. I found the peach crop in good condition and the shipping of early peaches in progress. Many orchards were overloaded and in order to get nice, large fruit many growers were obliged to thin. Peach growing is perhaps the most profitable to the Grand Valley fruit grower, as he has little opposition from pests and good crops come quite regular.

The Grand Valley will have an unusually large apple crop this season and as great care has been exercised in spraying, very fine fruit is looked for, as none of the orchards are over eighteen years old. There is also a fine crop of pears on the trees, also prunes, plums and California varieties of grapes. Fruit growing is carried on entirely by irrigation, so that drouth has no terrors for the Colorado fruit grower, and especially those of Grand Valley, as the Grand River furnishes ample water for all his needs.

Are any of the eastern readers of the journal tired of the east and are thinking of making a change, I would advise a trial of the great new and rich Grand Valley, where a rich soil obtains and a never failing supply of irrigating waters. I am not very well posted on land values, but vacant land may be had four or five miles from town at $60 per acre and up. This means land with water rights. A ten-acre tract of fruit land about sixteen years old close to town sold recently for $20,000 (twenty thousand dollars). At some future time I shall write of my home county (Fremont), also other Colorado fruit districts.

J. N. W.

Trees for Posts.

It takes at least one generation to find out the varieties of fruit or forest trees best adapted to a given section of country. Throughout the west the ash, box elder, soft maple, elm, Russian mulberry, catalpa, honey and black locust have been most extensively planted, and of these varieties the black locust is now in the greatest demand and is by far the most valuable tree to plant for fence posts. No other tree will grow to the required size so quickly, and the timber for this purpose is of the very best quality, and, as is generally known, outlasts with very few exceptions all other sorts. When once a grove is established it is never necessary to replant, as sprouts will grow the first season after cutting six to ten feet, and in four to five years is ready to cut again. There are but few farms in the west, but what have a few acres of low waste lands where this tree will thrive with the greatest luxuriance, and render this land, which otherwise would be of but little value, the most profitable part of the farm.

The writer a few years ago planted two and one-half acres of these trees and the first season they made a remarkable growth of six to eight feet and in the fourth or fifth we commenced to cut posts and have cut many hundred the past few years, and at present there is more post timber in sight than ever before, with a mass of smaller growths coming on. The borers have done damage to these trees, but before any tree had received injury from this source it had attained a suitable size for posts, and the past few seasons the trees have been exempt from these insects. We consider this by far the most valuable land on the farm and if every prairie farm had a grove of these, many thousands of dollars would be saved in each county where posts have now to be imported. We notice particularly in Western Kansas and Nebraska and the dryer portions of Oklahoma that this variety easily stands first as a drouth resisting tree and many fine specimens can be seen one foot to eighteen inches in diameter perfectly free from injury from borers and as clean, healthy trees as one would wish to see, where cottonwoods, maples, ash and box elders have succumbed to the severe drouths. In these regions especially we believe the black locust has a very promising future, as well as in the more favored districts to the east.

J. A. GAGE.

Beatrice, Neb.

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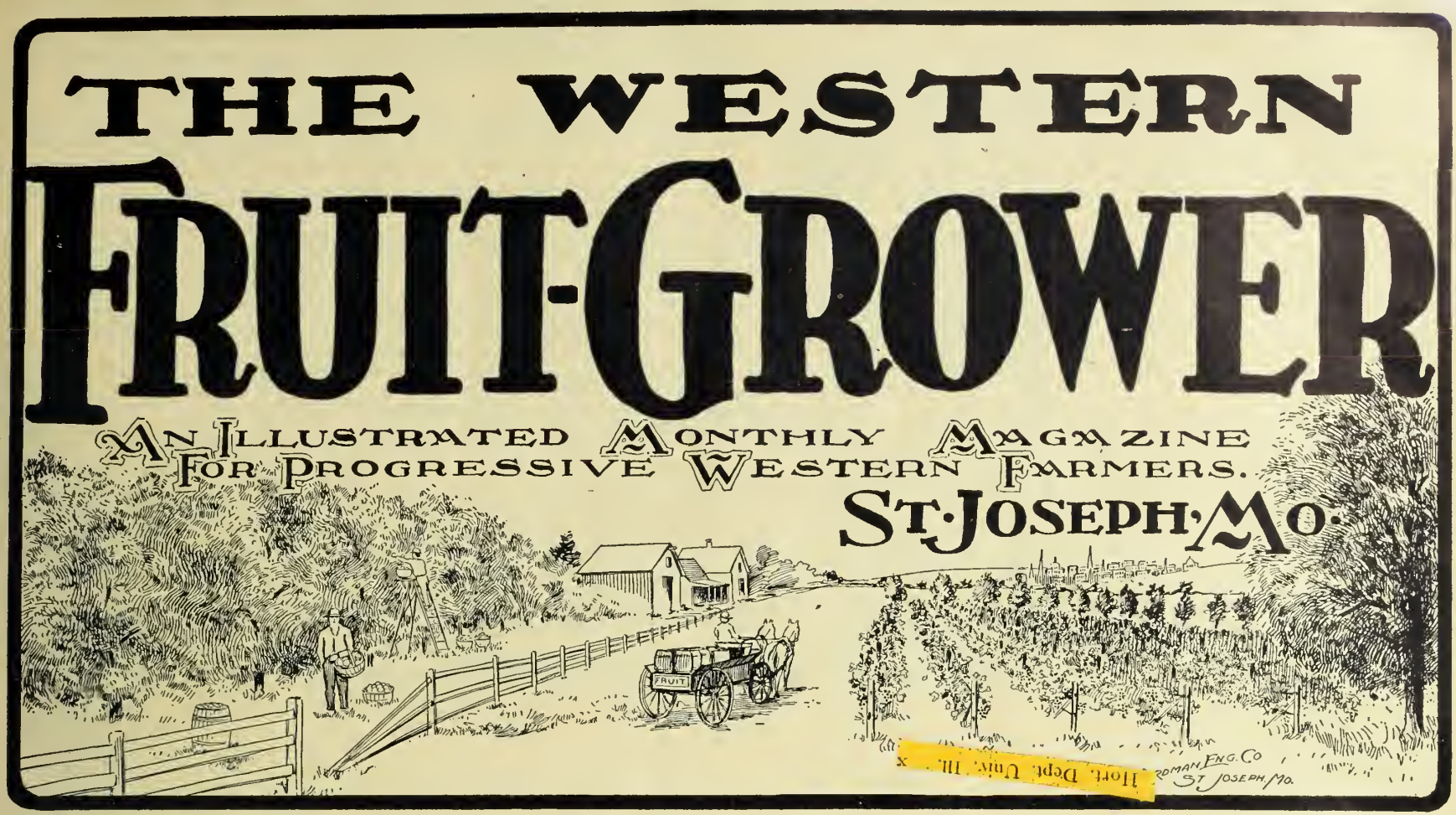
Volume Twelve SEPTEMBER, 1902 Number Three



The 1902 Peach Crop of Oregon County, Missouri

If its reputation had not been made before, this season established the claim of the Ozark country of Southern Missouri to being the best peach country in America. The crop in the extreme south portion of the state this season was very large, the fruit of extra fine quality, and prices were high. Oregon County, Mo., was the center of the industry this year.

Desiring to see the peach harvest at its height, a representative of the Western Fruit-Grower visited that section early in August, when Elbertas were moving out at rate of about twenty cars a day. The first thing which impresses one who visits that section from the north is the excellent train service over the Frisco lines. Leaving Kansas City at 6:30 in the evening, on a solid vestibuled train, one reaches Thayer, 340 miles away, before daylight, the run being made at about forty miles an hour, including all stops.

On reaching the Ozark country, which does not begin until one passes Springfield, the new-comer is apt to be disappointed with the red-looking soil, in many cases entirely covered with small stones. It is so unlike the soil with which one has been acquainted that the visitor at once assumes it is good for nothing—but it is certainly good for peaches. At Koshkonong, which is the station from which most of the peaches were shipped this year, the soil is a reddish-looking clay, and there are great numbers of stones through the soil. But notwithstanding this seemingly unfavorable prospect, peach trees had made a good growth and were bending down with their weight of fruit at the time of our visit. The fruit seemed to find its every need met in the elements in the soil, and it reached a high state of development.

Koshkonong is in Oregon County, Mo., just on the Arkansas line, located on the southern slope of the Ozarks. Several years ago a start was made in planting peach trees, and they not only grew wonderfully well, but bore an abundance of fruit of excellent quality. Among the first planters was J. G. McNair, who now has extensive orchards there. The Oregon County Fruit Company, of which T. M. Culver is manager, also planted a large orchard and has since planted more extensively. Among other growers are Colonel Hitt & Sons, Alderson Bros., O. L. Meek, W. O. Bonar and others. The McNair companies have several large orchards, among them a new one which Mr. McNair claims is one of the prettiest blocks of peach trees in America. This is certainly a pretty orchard, but the Culver company has one which is as fine as a young peach orchard can well be. We present with this article a view of a portion of the Culver young orchard.

At the time of our visit the Elberta season was at its height. On arriving at Koshkonong we found G. T. Tippin, vice-president of the Missouri State Horticultural Society, who was collecting choice peaches for preserving in formalin solution, for exhibition at the St. Louis exposition. This exhibit will likely be made under the auspices of the society, and if the fruit in 1904 looks as well as it did when it was placed in the solution, the eyes of the world will certainly be opened to the possibilities of peach culture in Missouri. Professor J. T. Stinson of the South Missouri Experiment Station was on the ground gathering notes on commercial peach culture. The Western Fruit-Grower is under obligations to both these gentlemen for favors received.

The town of Koshonong is a small place, but was very lively at the time of our visit. There were peach buyers from Chicago, Buffalo, Milwaukee, St. Louis—in fact, from nearly every prominent city in the North and East. Representatives of the different railroad companies, agents of the refrigerator car lines, newspaper men from a distance, sightseers and hangers-on—all these were there, and thousands of pickers and packers. Over all the hillsides there were tents, for the pickers from a distance camped out during the peach season, and either prepared their own meals, or ate at one of the large tents provided for furnishing meals.

It is impossible to describe to one who has not been there the appearance of the orchards. Little trees, seemingly too small to bear fruit, were burdened with a weight of perhaps a crate of peaches each; larger trees were bending to the ground with their load of ripe fruit. All the trees there are headed almost at the ground, so the fruit can be picked without use of ladders. It was impossible to get a photograph which would accurately illustrate the condition of the burdened trees, and therefore we are not able to present an illustration which will show the condition. Where the fruit had not been thinned the trees were breaking with their load; and nearly every tree was full.

A CRATE OF OREGON COUNTY ELBERTAS.

The fruit is picked in bushel baskets, with a pad of cloth in bottom to protect against bruising. About ten men work in a gang of pickers, with an overseer directing the work. The McNair orchard is laid out in blocks of twenty rows, then a street, twenty more rows, then a street, and so on. Arranged thus, one gang of pickers, one man to a row, will clean up a block of trees by one trip across the orchard and back. In picking the fruit the greatest care is used to see that no unripe or imperfect peaches are placed in the baskets. The baskets are collected by wagons with two decks each, traveling up and down the streets. When a wagon is loaded the fruit is taken to the packing shed and there the baskets are emptied on tables with canvas bottoms, with as little handling as possible.

Once taken from the trees, the pickers and packers lose no time in getting the fruit into refrigerator cars. In the Culver packing shed about 250 persons were as busy as bees, making crates, packing baskets, nailing covers on crates, loading into cars, etc., and in the largest McNair sheds fully as many more were at work, and in addition to the large McNair shed there were two others at different points, where the same procedure was carried out.

The packers were women and girls, their light touch having been found better suited to this work. The favorite package is the six-basket crate, the baskets coming made up. Four-basket crates were also used in some cases, but preference is for the larger crate. The baskets hold about two layers of good-sized fruit, and where the fruit is real fancy two dozen peaches fill a basket. The packers remove all overripe peaches, placing them in the cull baskekts. Each basket is filled full, so that the peaches fit snug, and when a crate of six baskets is ready it is removed and a nailer places the cover on and the crate is ready for the car.

Over each packing table is an inspector, who examines each package to see that no inferior fruit or faulty packing is allowed to pass. Mr. McNair imported a number of expert packers from Georgia this season to oversee the packers in his sheds, and the Culver company also had reliable persons for this work, so that no fruit ever had such a good record for good, honest packing as that which went from Koshkonong this season.

The fruit was all shipped in refrigerator cars, furnished by the Armour company. The cars were iced before being taken to the side-tracks, and as soon as each car was loaded it was closed and the same evening was again iced, so that the fruit was kept in cool temperature from time of packing until it reached market. Cars held from 550 to 600 crates of the six-basket size.

Several methods of disposing of the fruit were followed. Mr. Culver sold almost all his fruit on track, buyers paying about $1.25 per crate for Elbertas. Buyers were anxious for the choice fruit, and it never went begging, for it was early learned that the fruit carried to market in excellent condition. Colonel Hitt & Sons sold their fruit before ripening season to a Chicago commission house, at a stated price per crate. This was a very satisfactory arrangement, for both buyer and seller made something on the deal—and this, as David Harum says and actual experience proves, is a good plan. A number of the smaller growers shipped either with Mr. Culver or sold their fruit to Mr. McNair. The latter did

not sell any fruit, but had previously arranged with reliable commission men in different markets to handle his fruit, and the plan evidently worked satisfactorily, for Mr. McNair seemed to desire no change.

As to the size of the crop, we cannot present exact figures. Mr. McNair had perhaps 200 carloads, with the fruit he bought. Mr. Culver estimated his crop at 60 cars, but it ran over this figure somewhat—perhaps 65 cars. In addition, there were many express consignments to small towns. Besides this, at Brandsville, the first station north of Koshkonong, there were perhaps 25 carloads shipped. All the fruit carried well, sold at good prices, and Southern Missouri was again advertised as a peach country.

It takes a lot of people to handle a crop of peaches like this, and the sight was one worth going miles to see. Every effort had been made to systematize the work, so that there would be no lost time, and there was remarkably little confusion, considering the number of persons employed. At the Culver packing shed the upper story was used for workmen engaged in making the crates. As they were made the crates were placed in a chute which landed them just in reach of the packers, so that the latter need not leave their station. As fast as a crate was filled a "nailer" carried it away, the packer reached up in the chute for a new crate, and went on with the work. In this way the packers in the Culver shed did remarkably well in turning out work. There was little friction, no loud words, and everything moved nicely.

At the McNair shed the crates were made on the outside, and boys carried them to the packekrs. Otherwise the procedure was the same. At each shed railway sidings adjoined the grounds, and the filled crates were loaded on trucks and hauled directly to the cars. At the McNair sheds fifteen nailers were working at one time, and this will give one an idea of the speed with which the crates were filled, for each nailer's work consisted in putting the lids on the crates and nailing them up. It was stated that two cars an hour were loaded at the McNair sheds, and that in an emergency a car could be loaded in fifteen minutes. The highest day's shipment from this shed was 21 carloads.

On the payroll of the McNair company were over 2,000 persons, and eighty teams hauled the fruit from the orchards to the packing shed. It was said that 1,300 of the employes boarded with the company, taking their meals in the great dining tent, and sleeping in the large tents provided for this purpose. A score of women and men were employed to cook for the crowd, and several tanks were necessary to haul water to supply the thirsty workers. Each employe had a number, and anyone found violating the rules of the company at once lost his badge and was discharged.

We regret our inability to get photographs of all points of interest. We present herewith an illustration showing a view of the young orchard of the Culver company, which will plant 240 acres more next spring. Also a view of one side of the McNair packing shed, in which nearly 300 persons are as busy as bees. The third illustration shows one of the six-basket crates. The one which was photographed, however, was one of the smaller grades, and not of the fancy fruit, for the latter brands carried only 22 to 24 peaches to the basket.

Mr. McNair had three brands, and all his good fruit is branded with a handsome colored label on the end of the crate. If a buyer wants smaller fruit, it is sent out without a mark of any kind. The Culver company brands all its fruit shipped, and tries to see that none is sent away which will bring discredit on the name of the grower.

A SECTION OF THE CULVER COMPANY'S YOUNG ORCHARD.

The disposition of cull fruit was a problem this year. Of course, in orchards of this size, some fruit became too ripe to ship before it was picked. This fruit was removed in baskets, and one could buy as fine peaches as ever grew, too ripe to ship, but just right for canning, for 20 cents a bushel. Much of this fruit was wasted, and a great deal was fed to hogs. Next year, it is said, the Culver company will have a cannery to utilize this cull fruit. Certainly one should pay, for such peaches as could have been bought at this price would bring a high price as fancy fruit when placed on the canned goods market.

At Brandsville, in addition to the peach industry, there are extensive vineyards, and we understood the Brand boys would plant a much larger vineyard next spring. The fruit is used in making wine, which has a good reputation among connoisseurs.

What about the future of the country as a peach section? We see no reason why it should not be of the brightest. Certainly the section seems to be much favored. Of course, prices will not always range as high as they did this year—that is not to be expected. But if the growers are always as careful to ship only good fruit as were the shippers this year, the peaches of Southern Missouri will have a reputation everywhere, and a discriminating market will pay a good price for this fruit. And certainly no better peaches can be grown anywhere. One thing in favor of this particular section is the fact that the large growers who are now there will always make carlot shipments possible, and the small grower who may not have enough fruit of his own to secure a car at a time, may either sell his fruit to one of the large shippers, or join with them in the sale of his fruit.

When it comes to peach crops in the future, Koshkonong must be reckoned with, for the place is certainly well fixed to supply fancy fruit.

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Mention Western Fruit-Grower when you answer advertisements.

The Apple Crop

Since the August issue of the Western Fruit-Grower there has been little change in the apple situation. Buyers are slow in contracting for fruit, and for this reason the feeling is not quite so strong in the Middle West. Reports this month indicate about the same conditions as existed last month, and in some sections the crop has deteriorated. But buyers claim figures asked for apples are too high, and that they will have to buy fruit at not over $1.25 a barrel for the fruit, in the orchards, in the Middle West. Growers still claim the minimum should be not less than $1.50 a barrel, and we still believe this position on their part is justified by the crop reports. Some growers are talking much higher prices, but it is hardly likely Ben Davis and such varieties will bring much more than that figure, unless something unforseen injures a part of the crop before packing time.

There is no question that many apple handlers lost money last year, and there is no denying that they are extremely cautious in buying fruit this year. Few orchards, comparatively, have been sold, except that buyers will quote prices on Jonathans, figures ranging about $2 to $2.25 a barrel for No. 1 and 2 Jonathans in the orchard. Growers are foolish, however, to sell their Jonathans, leaving them to hunt for buyers for their other varieties. The Jonathans should help sell the less valuable sorts, and most growers follow this plan.

Apple buyers are quoting fact that few orchards are being contracted for as proof that the claim of the Western Fruit-Grower that good cold storage is worth at least $1.50 a barrel in the orchard, is erroneous. They say if the fruit were worth $1.50, buyers would contract now for the fruit. But the same rule holds good the other way—if apples were worth only $1 a barrel, growers would accept that.

It is evident that the crop in the East is very scabby. All reports are to this effect. It is also true that bitter rot has cut short the crop of parts of Illinois and Missouri. Altogether, we cannot see that apples are not worth what we have claimed all along—not less than $1.50 a barrel in the orchard—the only change this month being that some growers are feeling shaky on account of the fact that buyers are so slow in contracting for fruit. Hundreds of growers are preparing to put their stock in storage, and have already contracted for storage and barrels. They are in position to hold their fruit, their other crops having been good, and claim they will make at least $1.50 net per barrel from their apples. The Western Fruit-Grower has made a special effort to get reliable reports this month, and the foregoing seems to be the consensus of opinion.

Our reports this month follow:

Mammoth Springs, Ark.—Apples are 20 per cent better than a month ago, and we expect 6,000 barrels here, with quality good. Buyers offer 50 cents a bushel net, with growers asking 25 cents more, and latter are holding their fruit.—D. S. H.

Bentonville, Ark.—Crop has deteriorated since last report; expect 225,000 barrels in this county. Buyers offer $1.25@1.50 a barrel, growers ask $1.40@1.75. Both buyers and growers are putting in storage.—I. B. L.

Paonia, Colo.—Fine prospects for apples, peaches and pears. Will have railroad here in time to haul apples out. Buyers seem to desire time to decide on prices. Think we have 75,000 boxes of apples here.—J. L. T.

Quincy, Ill.—Poor orchards have become poorer, the good ones have improved and are finishing fine. Crop is very irregular, but we will have a great many fine appes. Buyers talk of paying $1 to $1.25, growers have set no price. Fruit promises to be good size and of fine color.—C. H. W.

DuBois, Ill.—Neglected orchards not so good as a month ago. Size of crop uncertain, but quality will be good. Have heard no offers, but growers want about same prices as last year. Bitter rot has done considerable damage.—A. A. H.

Jerseyville, Ill.—Crop not quite so good as a month ago. Should have 2,000 barrels No. 1, 400 barrels No. 2. Buyers offer $1 to $1.25 and for Jonathan, Grimes and Willow $2 to $2.50 a barrel. Growers ask not less than $1.50 up to $2.50. I. D. Snedeker has sold 70 acres, principally Ben Davis, on trees for $3,500, on trees. Estimated at 2,700 to 3,000 barrels.—W. E. C.

Griggsville, Ill.—Crop not so good as a month ago; should have 40,000 barrels of generally good quality. Buyers offer $1 a barrel, but sales so far have been by the lump.—C. W.

Hamilton, Ill.—Have 10,000 barrels, of good quality. Buyers and growers agree at $1 to $1.25 barrel. Have sold my crop of Ben Davis, 2½ inch and up, for $1.25 barrel, small dry specks accepted.—H. D. B.

Savoy, Ill.—Crop has deteriorated very little; will have 1,500 to 2,000 barels, including Senator Dunlap's orchard.—R. L. D.

Centralia, Ill.—Apples have gone back some, from storms and rot. Buyers talk of paying $1 picked down, growers asking $1.75 and $2 a barrel, f. o. h., and some will not sell at that. Weather ideal for ripening.—W. S. P.

Lafayette, Ind.—Crop about same as last month; quality only medium. Have heard no prices, except that local dealers (grocers) are paying $2 a barrel.—J. T.

Vincennes, Ind.—Apples have gone back somewhat; a few cars will be available here, of good quality. No buyers, but growers want 50 cents a bushel. Have sold our orchard in Illinois in a lump, as have most of the growers about Olney.—H. M. S.

Glenwood, Iowa.—Crop not so good as a month ago, by 10 per cent; 10,000 barrels will be sold, of quality above the average. Buyers quote $1.50 to $2.50 barrel; growers ask $2 to $3. Apples are much better than last season and will keep well.—J. P. J.

Hamburg, Iowa.—Apples doing well and not falling badly; crop light, except on young trees. Not half a crop here, taking all bearing orchards. Buyers paying $1.25 to $1.50 barrel.—A. A. S.

Lawrence, Kan.—Prospect excellent for virgin crop on my 90-acre orchard in Crawford County, Mo. Apples fine, few culls; sprayed four times.—David Krehbeil.

Troy, Kan.—Apple crop about same as last month; some orchards very full; should have 50,000 barrels here, of good quality. No sales yet, and no prices set. Think $2 per barel should be paid for Ben Davis, Winesap and Jonathan, delivered in orchards to packing tables. Prices cannot be much lower than they are in New York, where I understand sales are being made at $1.75 to $2.75 barrel.—A. P.

Lawrence, Kan.—Eight to ten thousand barrels around here, of average quality. Buyers quote $1.40 to $1.75 barrel; growers' prices will depend on demand and market conditions. Apples are larger than a year ago.—B. F. S.

Topeka, Kan.—Apple crop generally promises as well as a month ago. Quality better than usual. Buyers quote $1.25 barel; growers asking all they can get. Apples holding on well.—W. H. B.

Hutchinson, Kan.—Apples dropped badly; some orchards losing 40 to 70 per cent by heavy wind August 20. No prices.—W. H. U.

Leavenworth, Kan.—About 3,000 barrels of apples here of fair quality. Buyers offer $1 to $1.25 barrel; growers don't know what to ask. Buyers seem to be holding off and growers do not understand it.—E. J. H.

Parker, Kan.—Perhaps 20 per cent of apples blown down by wind. I will have 60 to 80 car loads of very fine quality. Buyers quote $1.50 barrel for the fruit. No fruit sold that I know of, but believe apples will sell at moderate price throughout the season.

Wathena, Kan.—Crop larger than a year ago, but quality is poor; very few orchards in which 50 per cent of fruit will pack No. 1. In some orchards fruit is undersize, but Jonathan is as a rule best of all. Some talk of $1 a barrel for fruit, but know of no sales at that price. Growers seem to expect low prices.—J. B.

Winchester, Kan.—Have two-thirds of crop of apples, quality good. Prices not yet established, but indications are that they will be $1.25 to $1.50 barrel.—J. W. C.

Atchison, Kan.—Crop about same as a month ago, quality good. Growers want from $1.50 to $2 barrel for fruit. No buyers make prices yet.—O. H. P.

Parkerville, Kan.—Crop here is one-third of last year's crop. I have 120 acres and about 3,000 barrels, for which I want $1.25 a barrel for No. 1 and 2 grades. I to pick and haul to station, buyer to furnish barrels and pack.—I. S.

Waldo Station, Me.—About 1,000 barels of apples here, of fair quality. Buyers $1.25 barrel through.—J. R. L. & S.

Charlotte, Mich.—Some nice orchards here, and crop of county will be about 65 per cent full crop. I have 1,000 trees, about half of them full, having perhaps three barrels to tree. Varieties Grimes and Ben Davis.—L. W. Wilton.

Waterviet, Mich.—Ten thousand barrels of apples here, with some scab. No buyers yet.—R. H. S.

Goodman, Mo.—Few apples here, but quality is good. Buyers offer $1 to $1.40 barrel, with growers asking $1.50 to $1.75.—L. A. G.

Mountain Grove, Mo.—Growers here want $1.50 barrel for fruit, buyer to furnish barrels, but no prices have been established. Bitter rot not spreading much.—I. T. S.

Oregon, Mo.—Perhaps 20,000 barrels around here, quality good. Buyers here, but no prices yet established.—N. F. M.

Chillicothe, Mo.—About 30,000 barels apples here, quality excellent. Buyers quote $1.25 for Ben Davis, $1.75 for Jonathan; growers ask $1.50 for first and second grades. Three-fourths of apples will grade No. 1, 15 per cent No. 2, 10 per cent culls in young orchards—G. A. S.

Neosho, Mo.—Fifteen or twenty cars of apples to be shipped from here quality fair to goo. No buyers here yet and I have not investigated prices, as I intend to store.—F. H. S.

Bogard, Mo.—From 1,000 to 1,500 barrels of apples here, good size and smooth. Have not heard buyers quote prices, but growers want about $1.50 per barrel. Buyers seem slow in making offers and no winter fruit sold.—I. C.

Carrollton, Mo.—Ten thousand barrels about here, quality fine. Buyers offer $1 barrel for No. 1 fruit; growers want $1.50. All fruit here is still unsold.—J. S. A.

Amazonia, Mo.—About 20,000 barrels here. Sprayed fruit good, others fair. Buyers offer $1.25 barrel straight pack; growers want $1.50 to $2 a barrel. Jonathans are best quality of winter fruit.—J. W. C.

Wheatland, Mo.—Have about 1,000 barrels winter apples, good quality. Will deliver on cars reasonable.—I. R. Jackson.

Seymour, Mo.—Believe fruit crop is greatly overestimated. A committee from our association visited orchards here and estimates 12,000 barrels for orchards tributary to this place, extending two to six miles from town. Take ten miles back quantity will be about 25,000 barrels. This is light crop, considering size and number of orchards, for there are two orchards of about 1,000 acres each, besides many others ranging from 40 to 200 acres. Quality of fruit is good, fully 60 to 65 per cent grading fancy.—L. S. W. Sec.

DeKalb, Mo.—Eight hundred barrels about here, about 80 per cent No. 1. This is only my orchard. Growers want about $1.50 per barrel straight grade.—W. S. M.

Spurgeon, Mo.—Not over 25 per cent crop here, quality good. Growers ask 50 cents a bushel for fruit.—I. I. N.

Waverly, Mo.—Some excellent orchards here and buyers will be welcome.—I. W. D.

Brockport, N. Y.—Crop deteriorated 20 per cent since last report; about 150,000 or 200,000 barrels around here. Quality usually not the best. Buyers quote $2 to $2.75; growers ask $2 to $3. Think my crop will give 10,000 barrels gilt edge fruit.—F. U.

Medina, N. Y.—Buyers here admit price of $1.50 barrel is too low and say fruit may start at $2. Growers are firm and will demand $2.50 barrel. They say crop is overestimated. (The New York state prices usually include barrels, packing, etc., fruit delivered f. o. b.—Ed.)

Lagrangeville, N. Y.—About 2,500 barrels of apples here quality generally good. Buyers quote $1 to $2 a barrel. Some sales have been made at $1 a barrel for fruit, taking everything clean, small and large.—T. C.

Lockport, N. Y.—Quality very fine here. Buyers quote $1.75 in barrels as fruit come from trees, and some are paying $2.25 for first grade, barreled.—D. T. McC.

Adams Basin, N. Y.—Some excellent fruit here, some poor. Buyers quote $2 to $3 a barrel; growers seem satisfied with these prices, but think if price were to drop buyers would kick on quality of fruit, so they don't sell yet.—C. O. B.

Rochester, N. Y.—Growers say crop is overestimated, and they are not disposed to contract now at prices offered. They say $2 a barrel should be the minimum, taking all barrelable fruit, or $2.50 upwards for strictly first-class stock.

Crete, Neb.—Apples continue to improve; will have perhaps 30 carloads. Buyers quote $1.50 a barrel; growers want $2 barrel.—E. F. S.

Tecumseh, Neb.—From 15,000 to 20,000 barrels here, quality good, except Winesaps. Buyers quote $1 barrel for No. 1s and 2s; growers want $1.25 to $1.50. Winesaps scabby.—W.G.S.

Bradrick, Ohio.—Crop not so good, on account of drouth; perhaps 10,000 barrels in the county, quality extra to very poor. A few extra sold at $3 a barrel for 2½ inch fruit; $2.25 and $2.75 for 2¼ inch; no price set on others. Some bitter rot, some trees dying from drouth, and heavy drop in some orchards.—U. T. C.

Stryker, Ohio.—Apples dropping badly. Few for sale here, but buyers offer $1.75 barrel in orchard.—A. H. S.

Burlington, Vt.—Perhaps 50,000 barrels in this section, only fair quality. No buyers, growers asking everything in sight. This report covers northwestern counties of Vermont.—F. A. W.

Linden, Vt.—Apple Shippers' Association overestimated crop of this state; only about 15 per cent of crop, of fair quality.—J. E. W.

Walla Walla, Wash.—Perhaps 100,000 boxes apples here, fair quality, with some wormy stock. Buyers quote about 75 cents per 100 pounds. Crop fine, except some worms; perhaps 75 per cent is clean and smooth, but worms are still working.—W. S. O.

Cox's Landing, W. Va.—Crop not so good as a month ago; quality medium. Buyers quote $1.25 to $2.25 barrel. Very dry here.—H. W. P. C.

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Hoops, Nails, Fixtures

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Fresh Whiskey Barrels, New Cider and Syrup Barrels and Kegs.

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RAFFIA Best quality, long strands, good color and strength.
We are headquarters.
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Wholesale Department.

Apple Growers to Form a National Organization

On November 18 and 19, at St. Louis, the American Apple Growers' Association will be formed. The objects of the proposed association, as set forth in the call for the meeting, are:

1. To discuss proper cultural methods.
2. To determine the best method of gathering all statistics pertaining to the extent and condition of the annual apple crop.
3. Securing expert opinion from those competent to give it on methods of progress.

The temporary officers of the proposed organization are H. C. Cupp, Fall Creek, Ill., president; T. C. Wilson, Hannibal, Mo., secretary. Vice-presidents from different states represented at preliminary meeting: Arkansas, M. F. H. Smeltzer, Van Buren; Illinois, A. V. Schermerhorn, Kinmundy; Missouri, W. R. Wilkinson, St. Louis; Kansas, William H. Barnes, Topeka; West Virginia, Guy L. Stewart; Alabama, George R. Kyle, Fruitdale; Iowa, Wesley Greene, Davenport; Nebraska, F. W. Taylor, St. Louis. Five of the temporary executive committee, in addition to the foregoing, were named, as follows: G. T. Tippin, Nichols, Mo.; Prof. J. T. Stinson, Mountain Grove, Mo.; P. A. Rogers, Gravett, Ark.; C. H. Williamson, Quincy, Ill.; I. D. Snedeker, Jerseyville, Illl

The foregoing summarizes the work of the conference of delegates from various horticultural societies which was held at St. Louis, August 19. The states represented in the list of vice-presidents were represented by a number of delegates. At the meeting Secretary Wilson of the committee which had had the matter in charge told of the preliminary work, and then H. C. Cupp, as presiding officer, asked for expressions of opinion as to the advisability of forming a national association of apple growers.

C. H. Williamson was called on for his views, and said he favored an organization such as had been proposed. The horticultural societies, which discuss all phases of fruit culture, will hardly meet the requirements, for the best apple grower must be an apple specialist, devoting his entire time to this branch of agriculture. As such specialist he should have the help of others in the same line of business. There is not a general standard of orcharding which is high enough, and apple growers must get together as specialists and concentrate on the one thing of commercial apple growing.

J. W. Stanton, Illinois; Wm. H. Barnes, Kansas; G. T. Tippin, Missouri, Rogers of Arkansas and A. V. Schermerhorn, Illinois, spoke along the same line, and a committee of three was appointed to draft a statement of the purposes of the proposed organization, and issue a call for the first meeting. The purposes of the association are set out at the first of this article, together with the time and place of meeting. It was agreed that every apple grower in the United States and not to exceed two delegates from each state horticultural society in addition be invited to attend the meeting at St. Louis in November, and that all such persons be recognized as members until a constitution shall have been adopted.

Those in attendance at the meeting were photographed, which we are pleased to present herewith, and the meeting adjourned to meet at a location to be selected in St. Louis on the 18th of November. Those interested can correspond with either of the officers named in this article. The citizens of St. Louis, it is believed, will arrange a fund to provide for premiums for fruit exhibits at the meeting, and it is likely the meeting in November will be the occasion for making a very fine exhibit of apples.

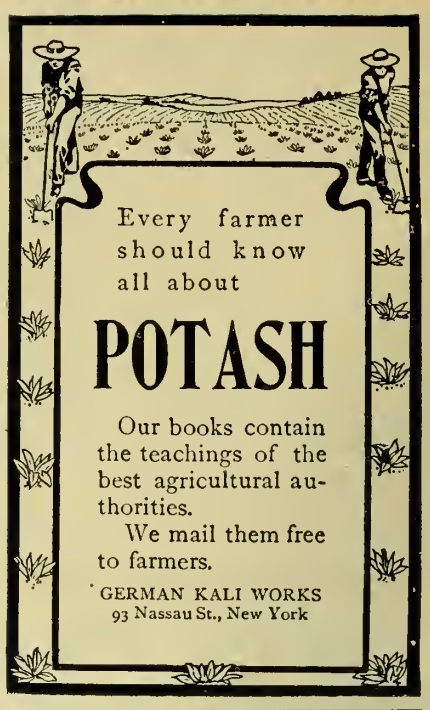
Bitter Rot of Apples.

While at the conference of apple growers at St. Louis we learned there has been considerable loss in Illinois orchards from bitter rot this season, and also in Southern Missouri. In some places in the southern part of Illinois it was said the fruit from entire orchards was being shaken down and the apples taken to the evaporator. This was thought necessary to save the fruit from the disease. Since August 22, however, we learn the disease has not spread much in Southern Missouri, and doubtless the same is true of Illinois.

In speaking of this matter at the meeting at St. Louis, President Dunlap of the Illinois society, told of some experiments which were conducted in an orchard near Xenia. One row of trees was sprayed with Bordeaux mixture, the one next to it unsprayed. Fallen fruit from the sprayed trees was 3 per cent rotten, from the unsprayed trees 35 per cent rotten. Mr. Dunlap believes the first sprayings for bitter rot have been made too late; should begin in June to make the work most effective.

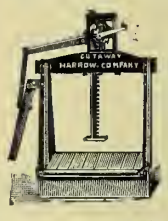
Prof. Stinson told of the work at Mountain Grove (Mo.) station. Applications of Bordeaux mixture had been made at different dates, and he now believes enough is known to justify the statement that the crop can be saved from bitter rot if the work is started in time. Fruit sprayed six times this season seems to be safe, although in some orchards bitter rot is more destructive than in 1900 at same date.

DELEGATES TO CONFERENCE OF APPLE GROWERS



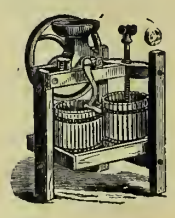
Wagon World Awheel.

Half a million of these steel wheels have been sent out on our own wagons and to fit other wagons. It is the wheel that determines the life of any wagon, and this is the longest lived wheel made. Do you want a low down **Handy Wagon** to use about the place? We will fit out your old wagon with **Electric Wheels** of any size and any shape tire, straight or staggered spokes. No cracked hubs, no loose spokes, no rotten felloes, no resetting. Write for the big new catalogue. It is free.
Electric Wheel Co., Box 217 Quincy, Ills.



SAMPSON TOBACCO PRESS

108 Barrels



CLARK'S CIDER MILLS

Clark's Double Action
Cutaway Harrow will easily move 15,000 tons of earth one foot in a day

Clark's Sulky Gang Disk Plow. From 3 to 8 feet. For horse or steam power.

CUTAWAY HARROW CO.
HIGGANUM, CONN.
Send for circulars.

1,000,000 Strawberry Plants
100,000 Raspberry Plants

Aroma, Rough Rider, Kansas, Excelsior, Parker Earle and all leading varieties. Cumberland, Munger, Kansas, Gregg and Cardinal Raspberries. Early Harvest and Snyder Blackberries.

10,000 Peach Trees
Our prices are right; send for catalogue.
ELMHURST NURSERY AND FRUIT FARM
M. E. CHANDLER, ARGENTINE, KAN.

LOOK HERE! Send 25c and get a pair of Safety Trace Holders for a wood-end single tree; if not satisfied, send them back and get your money back. J. T. HIRT, Iowa City, Iowa.

Big Profits in Strawberries
ARE SECURED FROM CHOICE PLANTS

I grow and sell that kind. I have planted extensively of standard and well tested varieties for next spring's trade. My Motto: Choice Stock, True to Name and Free from Disease. Catalogue issued January 1st. Send for it.

Dr. E. L. Beal, Republic, Mo.

Schulze Trees Fruit
Where Others Fail. Result of
BEST WHOLE-ROOT PRCOESS

Planters guids and fruit book free. Specialties: Apples, Peach, Pear, Cherry and Plum. Offer a carlot selected Seedling Peach of Elberta and Champion, etc. Up-to-date varieties. pay: Golden Ben Davis,, Black Ben Davis, Delicious, Apple of Commerce, etc. Wholesale direct to planters. Guarantee pedigree stock, true to name.

Schulze Bros., Brussels, Ill., Deer Plain, Ill.

Cherry Leaf Spot Disease.

The horticultural department of the Iowa Experiment Station is receiving many inquiries regarding some disease which is destroying the foliage of the cherry trees. Specimens of leaves from various sections of the state have been examined and they all seem to be affected with the Cherry Leaf Spot. This is a fungus disease produced by spores which find lodgment in the young leaves early in the spring. These grow, causing the formation of small, yellow spots about one-eighth of an inch or more in diameter, which, later, turn dark brown, its familiar stage of growth at this time.

In plums the same disease is found. It is here known as the Shot Hole fungus, on account of the fact that these brown spots fall out of the plum leaf, giving the foilage a shot hole like appearance. All of the stone fruits seem subject to this disease. Among the plums, those of the European type are

especially susceptible. All varieties of cherries are more or less subject to it. It has been stated that the varieties of the Morello types are especially affected. In the experience of the writer, however, under the same conditions, it is equally common to all of our Iowa varieties. Herewith is an illustration showing cherry leaf, also plum leaf; note the small holes in the latter, where disease ate the leaf tissue.

Its work is often most serious in the nursery row or new orchard, where the young plants make a poor growth on account of the lack of adequate foilage system. On older plants the results are less serious, but the foilage usually ripens and drops prematurely. If this ripening takes place in August or later, the results are not usually serious. However, the normal function of the leaf has been interfered with and cut short in its work. Such a condition of affairs is not at all desirable. The tree is weakened and in warm, wet falls such trees are likely to take on a second growth, leaving them in a bad condition for winter. In any case the vitality of the tree has been lowered and the effect is very likely to be apparent upon the next year's crop.

From a large number of experiments carried on at this and at other stations and by cherry growers it has been proven conclusively that this disease may be effectively held in check by spraying with Bordeaux mixture. The first application should be made before the buds have opened, and the second and third after the fruit has set. The number of applications depending upon the individual season.

The disease is especially prevalent when the weather is damp and "muggy" like the present has been. All effective spraying must be in the nature of a preventative rather than a cure. Spraying at this time after the spores have appeared upon the surface of the leaf will be ineffectual in saving this year's foliage. Wet seasons like the present furnish ideal conditions for the growth of this disease on the one hand and have made spraying operations of all kinds much less effective on the other.

A. T. ERWIN,
Asst. Horticulturist.

Ames, Iowa.

(The Western Fruit-Grower has received many inquiries concerning this disease, showing it to have been unusually bad this year. Prof. Erwin's article and the illustration, therefore, are timely.—Ed.)

Extensive Orchard Plantings.

While Missouri has more fruit trees than any state in the Union, the planting will show a great increase in the next decade. Several new companies have been formed to embark in orcharding, among them one in which M. J. Wragg, president of the Iowa State Horticultural Society, is interested. This company will plant extensively near Lebanon, Mo., on the Frisco line. Another new company is The Frisco Orchard Co., with a paid-up capital of $300,000. H. B. Shafer of Springfield, is the chief stockholder. The property of the company consists of 1,900 acres of orchard lands near Koshkonong, Oregon County, Mo., and options have been secured on other large tracts in the vicinity of the McNair and Culver orchards, near Koshkonong. Certainly Oregon County will be well planted to fruit trees in a few years.

Experiments With Persimmons.

Several years ago Mr. L. H. Callaway, Chapin, Ill., had an exhibit of persimmons at the meeting of the Missouri State Horticultural Society, which attracted considerable attention, owing to the fact that Mr. Callaway is trying to get a good seedless persimmon. A letter from him states he is still at work on this, and is making much progress. He says: "I have some grafts that are top-worked on seedling trees. These grafted limbs are now loaded with their first crop of fruit, and I am anxious to test the new sort. Grafted persimmons are difficult to grow in the nursery, but I have enough grafted persimmons in nursery rows, this season's growth from graft, to set out an orchard of the same next spring. In other nursery rows. I have persimmon stocks growing for future grafting. It is my intention to establish a persimmon orchard of a few choice varieties."

The Terry Plum.

We recently received from the originator, Mr. H. A. Terry, Crescent, Iowa, samples of the Terry plum. This is a true American plum of good size and attractive appearance, which Mr. Terry says will succeed in all the Northwest. The specimens arrived during our absence from the city, and when we returned they were not in condition to sample to determine quality, but they are certainly attractive. Mr. Terry is well known as a great worker with plums, and his recommendations are reliable. We understand the Terry plum has been bought by the Capital City Nurseries, Captain C. L. Watrous, proprietor, Des Moines, Iowa, and that stock will be offered next spring. The new plum will certainly be in demand among those who grow this fruit.

INTERESTING READING FOR FARMERS.

In a season such as this when pear blight has destroyed more trees than ever before, an extract from a paper like the following will prove interesting reading:

It is signed by representative men in different vocations: Fruit Growers, Farmers' College Professors, Bankers, Merchants, etc. The list is too long to be published, but may be had on application. This is part of what they say:

"Among blocks of hundreds, yes thousands of trees in orchard and nursery black with blight, one variety, and only one, stood out in strong contrast to all the rest; the Sudduth. In growth as handsome as a hard maple, bending down with its weight of fruit; even in the nursery row it stood without a rival, not a blighted leaf to be seen."

Augustine & Co., of Normal, Ill., growers of Nursery Stock and sole propagators of the Sudduth Pear, will send you free, an illustrated history of this remarkable fruit. Write to them today, do it before you forget.

In a fruit trade paper there recently appeared an advertisement soliciting apples for export to Europe, and the statement was made that for Germany "only red fruit is required; in Berlin high-colored Western Ben Davis are much admired."

The exhibit of fruit at the Iowa State Fair this year was excellent. The general quality of the fruit, especially apples, Prof. Erwin says, was fine. Exhibit of plums, which is usually a feature of the Iowa fair, was somewhat short this year, as this is an off season for plums in Iowa.

Inspectors very recently made their visit to Harrison's Nurseries, Berlin, Md., and after thoroughly going over everything they not only gave an absolute clean certificate, but stated all the stock was in the best possible condition. As a matter of fact, there has never been a scale found in this nursery.

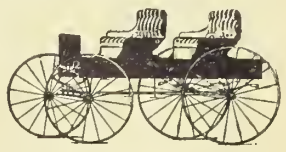
At the August meeting of the St. Louis County Horticultural Society, H. Wallis of Wellston, read a very interesting paper on "Grape Culture," Prof. Irish one on "Insects," E. W. Terry one on "Budding," and Prof. Spaulding talked on diseases of fruit trees and Clarence Chandler talked on the subject of fruit culture in the soils of St. Louis County. Premiums for exhibits of fruits were awarded to Messrs. Prouhet, Moser, Thies, Koenig, Bangert, Harke, Weber, Terry and Wallis. This society is in good condition; E. W. Terry is secretary and Henry Meyer, president.

PAY ONE PROFIT--SAVE TWO

By our Factory's One Profit Selling System, whereby we sell direct from our factory. You can buy our Standard Grade, "Guaranteed" Vehicle, and save the wholesale and retail profits. You pay the freight, but so does the jobber and dealer, only they make you pay it, included in their enormous profits. Our prices are all F. O. B. St. Louis, where we have our Western Warehouse, supplied in car lots from our factory.

ONLY $37.50 OUR FINE TOP BUGGY, with Long Distance, Dust Proof Axles, Full Bolted, Best Quality Hickory Wheels, Oil Tempered Springs, Spring Cushions and Full Length Body Loops, Etc., Etc.

ONLY $44.50 Either Three Spring or One-Half Platform Spring Wagon, complete with Best Quality Hickory Wheels, bolted through the rim on each side of every Spoke. Double Collar Axles Body with Heavily Ironed Covered Corners, Etc., Etc. See Catalogue Write for catalogue and prices at once and address all mail to our Western Office at St. Joseph, Missouri.



CRESCENT CARRIAGE CO.,

Warehouse: St. Louis, Mo. Western Office: St. Joseph, Mo.

Our Strawberry Plants

are growing finely. The extreme drouth of early spring cut our acreage in two, but we have a fair acreage remaining, and as weather has been very favorable since May, we have promise of several million of best plants grown. A number of new varieties entirely dried out and our catalog for spring of 1903 will give you a great deal of information on varieties best suited to our western country.

WE HAVE INCREASED

Our Raspberry plantings and will have a very large supply of plants for our fall and spring of 1903. Also Blackberry plants, and don't forget that we have 150,000 1-year-old asparagus plants; best varieties and largest 1-year-old plants you ever saw. If you want plants this fall, write for prices. Address

F. W. Dixon, Holton, Kan.

COLD STORAGE FOR APPLES

IF YOU INTEND STORING APPLES THIS YEAR, WRITE US FOR RATES, ADVANCES, ETC.

IF YOU HAVE APPLES TO SELL, WRITE US FULLY, STATING NUMBER OF ACRES, PROBABLE YIELD, VARIETIES, CONDITION OF FRUIT, ETC.

Armour Packing Company

Armour Station, KANSAS CITY, KAN.

A Good SPRAMOTOR is a Joy

A pretty good sprayer is an abomination, for it will not save, as you fondly hoped, a percentage of your crop.

With a SPRAMOTOR a farmer can improve his Fruit Crop 80 per cent; rid his stock of the annoyance of Horn Fly, thereby increasing the butter yield one-third. He can destroy the Wild Mustard (Charlock) in the growing grain without injuring the crop, and the improvement in the grain yield will more than repay the cost, and finally he can paint his buildings with SPRAMOTOR COLD WATER PAINT.

Full particulars, and 80 paged Copyrighted Treatise to all who mention this paper.

Canadian Factory, London, Ont. SPRAMOTOR CO., 109 Erie Street, Buffalo, N. Y.

Cold Storage

Our plant is situated right in the heart of the best apple district and to get good results, fruit should be stored soon as packed. Our railroad facilities are the best, and we take care of the fruit as soon as received. When apples are put away, it is hard to determine where the best market will be, and by storing near base of supply you get the advantage of all the markets and very often you save the freight one way. For other information call or write

St. Joseph Ice and Cold Storage Co., St. Joseph, Mo.

Questions and Answers

NOTE—Last month a numher of qucries which we sent to Major Holsinger were lost in the mails, together with his replies. Those who should have had replies to same, and have not, will please take notice and repeat their queries.—Ed.)

W. S. C., Newark, N. J.—Cannot pine tar be used on trees to keep out borers and prevent rabbits from gnawing trees? I believe gas tar is injurious, but pine tar, heing a product of pine trees, should be harmless.

This query was referred to Prof. Erwin of the Iowa Experiment Station, and as he had had no personal experience using pine tar he referred it to Prof. Green of the Minnesota station, who writes: "The inquiry which is inclosed, in regard to the use of pine tar on trees, I am not able to answer positively, as I never have had any experience in this line. My opinion is that pine tar can be used without danger of injury on almost any of our trees, but I did not know but what it might injure the rather sensitive bark of the peach. As you know, it is used in quite a number of the European nurseries as a component of their grafting waxes."

W. B. H. Cassaday, Ky.—Where can I obtain vines of the Ozark grape?

We hclieve the Ozark grape is now catalogued hy a number of our advertisers, particularly the Missouri nurserymen, although we have not their catalogues at hand.

J. B. W., Spickards, Mo.—I am at a loss to know what to do with my cull apples and peaches. I know that making them into vinegar does not pay, and it won't do to dry them. I think a small distillery would be the best think to work the cull fruit into brandy, but have had no experience in the matter. Have any of your readers had any experience?

Answer: Personally, we are opposed to making any sort of fruits into intoxicants of any kind. And as a business proposition, also, we doubt if such a small plant would pay. In this issue, in Major Holsinger's department, Prof. McAfee tells of the sale of the distilling plant at Olden, Mo., to the trust. The experiment did not pay, it seems, and Judge Wellhouse's experience with fruit evaporators was likewise unprofitable. Judge Wellhouse says sell the culls for whatever they will bring—the by-products don't pay.

W. H. Y., Aberdeen, Miss.—Will apples put into cold storage in good condition abont the 15th of October keep in good condition until Christmas, and do they ever rot while in storage? I wish to buy a lot and put in storage in Memphis, if they will keep.

Answer: Apples which are sound and firm when put in storage will keep much longer than Christmas, if the temperature is held uniform at the proper point. The storage retards the ripening of the fruit, and therefore it should be put in storage when firm and sound, and as soon as possible after being taken from the trees. Handled thus, and with the temperature in storage room kept at the proper point, there should be little waste. It should be remembered, however, that some varieties of apples, particularly the yellow sorts, frequently "scald" in storage.

H. L. T., New Bedford, Mass.—When is the best time to prune?

Not knowing what you want to prune, it can only be stated that most of the pruning of trees and plants is done when the plants are dormant—from time leaves drop in autumn until before growth starts in spring.

Mrs. M. K., Parker, Kan.—Can anyone copyright a tree or plant of any kind? A neighbor has some so-called copyrighted trees, and I want to know if I can get scions from this neighbor's trees and propagate trees for my own use or for sale?

We have never investigated this matter, but believe there can be no copyright or patent on any tree. It is claimed, however, that a name can be copyrighted or patented as a trademark, and that none other than the person owning same can sell under that trademark name. We should think, therefore, that you can propagate trees yorf -dew roumendr1J you can propagate trees from your neighbor's trees, if he will allow you, for your own use or for sale, but that you can be enjoined from using the trademark name of another firm in labeling and advertising the trees.

Last month a reader wanted to know about growing evergreens from seed. This month we have these replies:

John Schomman, Oakwood, Mo., writes: "Pines and cedars trees are not hard to grow from seed. Here is the process as followed in Denmark: Gather the cones when ripe, and put them in a warm place to open; a moderate oven will do. When open, the seed will fall out. Next spring soak them in water for 24 to 48 hours. Then prepare a bed running east and west about four feet wide; sow seeds very thick and cover with fine dirt from the hand about twice the thickness of the seed; then press or roll it solid; cover the bed with some coarse mulch and keep moist until the seed come up, then take the mulch off gradually and stick brush on the south side of the bed to shade the young seedlings. The brush is stuck the same as pea brush, but much thicker and leaning over the bed."

John Howe, Pacific, Mo., writes: "To grow red cedar from seed gather the seed in November, mix with sand and bury in a well-drained place. The seed must be left in the ground eighteen months before sowing; that is, seed gathered this fall must not be sown until April, 1904. Sow the seed in rows six inches apart and cover with sand one inch deep. The seedlings must be shaded with lath screens the first two years."

H A. S., Wallace, Mo.—What insect laid the inclosed eggs?

Answer by Prof. Stedman: They are eggs of bombycid.

G. C., St. Joseph, Mo.—Some kind of a worm, such as I inclose, is eating leavess on my young apple trees. What is it?

Answer by Prof. Stedman: The insects escaped in transit, but the leaves show the work of the worm. Spraying with any of the arsenical sprays will be effective.

M. B., Harrison, Ark.—Insects sent with letter were lost before reaching Prof. Stedman, who was unable to identify them, of course.

J. D. B., Augusta, W. Va.—I inclose something we find sticking in the body of peach trees, and would like to know what it is.

Answer by Prof. Stedman: The objects sent are the larval cases which protect and are carried about inclosing the bodies of a minute larvae. They will do you no harm.

M. S., Brentwood, Ark.—I have a cherry orchards and want to know what kind of fertilizer is best for it and also at what time the fertilizer should be applied for best results.

Answer by Prof. Howard: As a rule, cherries do not require the application of fertilizers, but in special cases they may. Not knowing anything about your soil, the condition and age of the trees, etc., it is difficult to recommend any special treatment. As a general statement, I should say to dress the land this winter with a light coating of barnyard manure and plow it under next spring. Wood ashes spread around the trees as far out as the branches extend would no doubt be beneficial. If the trees have been growing in sod for a long time it might seriously injure them to plow it up. In this event, apply the manure and ashes without cultivating.

O. F. G., Cedar Falls, Iowa.—Have any of your correspondents had any experience with root gall among red raspberries? I have about two acres set in Loudon and Wilder, which are badly affected, yet the plants grow vigorously and fruit reasonably well. What is the cause and remedy, if any? These canes are among apple trees. Will the disease affect the trees, which are thrifty three-year-olds? Is the disease indigenous to the above varieties? I have some Cuthbert in another part of field not affected; have discovered none of it among the Cumberland or Kansas. Soil is of the usual Ozark type, ground cleared and cropped one year before planting. Can soil conditions have anything to do with it? The orchard is located in Crawford County, Mo. In same tract, but not among these canes, I have a few hundred peach trees, Elberta, Crosby, Triumph, etc. In the latter part of July the leaves commenced turning yellow and gum exuded from the trunks and limbs. This orchard has had special care. Drouth in 1901 was severe in that section, and not much rain this year. Could drouth have been the cause? What is the remedy?

Answer by Prof. Howard: Root gall, or crown gall, is a common disease in Missouri, affecting both red raspberries and apples, and sometimes the peach. The disease is supposed to be caused by a fungus which lives in the soil, and no successful, practicable remedy has yet been found. I believe the disease may be spread from the raspberry to the apple, and vice versa. Owing to the nature of the fungus, it is possible that soil conditions may play a part in the spread of the affection in some localities, but in the Ozarks I do not believe we are concerned with this phase of the question. I have reasosns for believing that the disease remains in the soil, once it has become plentiful there on some crop, for a long time. A nursery grown upon the site of an old orchard, where the trees were affected with the gall, will undoubtedly be badly diseased. If raspberries begin to die, move the planting to a new location, and transplant only such sprouts as have no trace of the disease, and before setting them out dip them in a solution of Bordeaux mixture. I think your peach trees are affected with borers, as they did a great deal of mischief in peach orchards last summer. Examine the trees where the gum is exuding immediately, and dig out the worms. If there are no borers, write to the Department of Horticulture at Columbia, Mo., and tell exactly how the trees look. If yellows or rosette is present, you should know it immediately.

Last month, in making up a type page, some matter became transposed, so that the answer to a query was mixed up. We present it herewith as it should be:

O. H., Goodrich, Kan.—Inclosed find leaves of apple tree on a neighbor's farm. A tree near a cedar first showed little yellow spots on leaves, which spread all over the tree and went from tree to tree through the row; then on a row adjoining, until both rows were alike affected. The cedar trees were loaded with a fungous growth during wet weather in May. All of the trees affected are Jonathans, excepting tree next to cedar. This disease does not seem to atack peach trees, as there is a row reaching affected trees. Please tell me what you know of this disease and what kind of fruit is liable to be affected by it. Does arbor vitae have a fungous growth that is transmitted to fruit trees?

Answer by Prof. Howard: The leaves sent were affected with a fungous disease called leaf rust, or cedar apple rust. The disease is very interesting, because it spends one-half of its existence on the common cedar tree and the other half on some tree like the apple, crab apple or red haw. On the cedar it exists as gals or spongy growths on the twigs, which are familiarly known as cedar apples. In early summer, after a warm rain, there is formed on the cedar apples a growth consisting of strings of a gelatinous-like material, which soon dries up and disappears. This is the fruiting stage of the fungus and the minute spores of the disease are carried by the wind to the apple trees, where they find lodgment and begin to grow on the lower sides of the leaves, here forming the true rust. The apple is about the only cultivated fruit attacked by this fungus, the peach and plum being exempt from it. The arbor vitae is thought to sometimes spread the disease, but I have not seen any of these trees with "apples" upon them. The remedy for cedar apple fungus is to destroy all cedar trees near the orchard. Spraying with Bordeaux mixture is uncertain.

THE LYNX-EYED TILLER OF THE SOIL.

(From Printers' Ink.)

Country people excel all other classes as readers of advertising. For one thing, they are eternally on the lookout for bargains. They have the spirit of barter bred in them from infancy, and love to buy and sell. For another reason, they have not ready access to places where goods can be seen, and therefore form their opinions and make selections from advertising and catalogues.

The farmer and his wife and his children read thousands of lines of advertising in the course of the year. The city clerk who plays the races Saturday, with his wife, who ranges Sixth avenue for bargains, like to have advertising compressed into a phrase and put on a billboard. Even the newspaper aimed at city people must be a phase—a sort of billboard in miniature. But the farmer has more time—knows that he has all the time there is, at any rate—and does not balk at reading two or three inches of small type. But he reads for facts. He can't examine the goods, and he is not fond of sending them back if unsatisfactory. He wants that ad to tell him what the show windows tell his city cousins, and if he is told he will not grudge the time in reading. His time being his own, is usually more valuable than the clerk's, but he reads advertising because it is his way of shopping.

He is a great stickler for details, ever on the alert for inconsistencies. Give him a catalogue, and he will hunt out all the errors that have crept in, taking advantage of all the misprint prices that give him the best of the deal. Not long ago Montgomery Ward & Co., Chicago, sent out a carpet booklet, in which the figure "1" had broken off the printing plate on the price of a carpet of $1.42, leaving the printed figure $ .42. The orders that came for this carpet far exceeded any other item in the hooklet, and cost the firm a pretty penny to fill, for the error was accepted and paid for without attempt at explanation. Readers knew that carpet to be a hargain, and the way in which they found it showed how closely advertising is read in this country. The same firm receives about 100 letters every month asking why no comma is printed between "Montgomery" and "Ward," for the farmer seems eternally interested in making two individuals of the gentleman who is really but one. Another pointpoint upon which farmers formerly sought light was that of street numbers. The firm's large stores on Michigan avenue are numbered with odd and even numbers, as the opposite side of the avenue is a park. These numbers were so widely noticed and provoked so much inquiry and suspicion that plain "Chicago" is now used as an address with "corner of Madison and Michigan avenue" for those who visit the city.

The farmer is thoroughly alive. Give him credit for examining every bit of advertising that he gets hold of. When the Montgomery Ward tower was finished Mr. Thorne, the advertising manager, made an estimate of its height, and used the result in ads—394 feet. Subsequently a survey showed that the real height was over 400 feet. When a change was made, however, the farmer protested so vigorously, and was so skeptical that 394 feet has been adopted for the official height, though it is some ten feet less than the real height. Further interest was added to the discussion when a printer, through a typographical error, claimed a third greater height for the tower that has interested so many country folks, and then the farmer rose in his wrath and allowed as how if he had a tower he'd try to find out how high the consarned thing was, anyway.

Readers seem to know every square inch of the 1,056 pages in the Montgomery Ward catalogue, and in the course of the year they are scanned and thumbed hundreds of times. City people cannot be brought to read ads or literature so thoroughly. If you get them to look your way for one second you must fix a name or phrase in their minds. It seems, however, that Montgomery Ward & Co. in compiling the catalogue have not in any way taken advantage of the fact that country people have plenty of spare time. Their catalogue is the acme of simplicity, conciseness and accuracy. It is well illustrated, and, considering its size, remarkably well printed and bound. This latter work we understand is done by the Lakeside Press, one of the oldest and best equipped printing houses in Chicago.

To Advertisers.

With this issue the advertising rate of the Western Fruit-Grower is increased to 15 cents per line, $2.10 per inch. The rate is flat, with no discount for time or space. Circulation for the coming season is guaranteed to exceed 30,000 copies per month.

To help swell our circulation and to increase the value of the Fruit-Grower as an advertising medium, we have purchased the subscrintion list and good will of Farmer's Fruit Farmer, formerly published at Pulaski, N. Y. Mr. Farmer will write for the Western Fruit-Grower and his many friends, we are sure, will appreciate the Fruit-Grower family of correspondents, editors and friends.

Next month's issue of the Western Fruit-Grower will be an exceptionally good one, likely of twenty pages. Apple-picking scenes will be shown, there will be the usual quantity of live horticultural matter, and it will be a good number in which to start advertising.

Remember the new circulation and new advertising rate.

Thirty thousand circulation; advertising rate, 15 cents a line, $2.10 per inch.

Saving Cherries From Birds.

There are two very sensible and practical ways of saving cherries from the birds. 1. Plant mulberry trees. The birds like this. It is a softer and sweeter fruit, and the birds will choose the mulberries in preference. I have seen clouds of birds leave a large orchard of fruit, and let it alone to settle on the trees around the mulberries. In planting cherries remember the birds and plant something for them also. 2. Birds are afraid of reflectors and rays of reflected light. Here a useful trick can be learned from the Filipinos. They were troubled by the birds stealing fruit from their fruit trees. They put upon their trees poles with little mirrors or small bright pieces of metal to reflect the light, swinging suspended from the poles. As they swing around in the breeze the reflectors cast their rays of light in every direction, and their trees were free from the birdsd immediately. The birds flew away to escape the rays and flashes of light. The remedy is simple; very efficacious, and requires no watching by the farmer. It is worth $100 to anyone who has cherries, and is bothered by birds.

Otwell's TREE PAINT

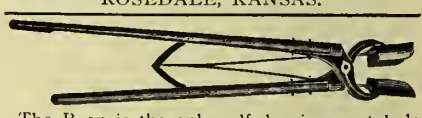
for 7 years has grown in favor. Millions of trees saved from rabbits in winter and borers in summer. It costs nothing for circulars and terms to agents. The best thing in the world for fruit trees, and you will say so too.
Write W. B. OTWELL, Patentee, CARLINVILLE, ILL.

I Can Sell Your Farm
no matter where it is. Send description, state price and learn how. Est. '96. Highest references. Offices in 14 cities.
W. M. Ostrander, 922 N. A. Bldg., Philadelphia

Do You Need Apple Barrel Stock
GET PRICES FROM
Ozark Cooperage Co.
KANSAS CITY, MO.
Postal Telegraph Bldg. Tel. 2849
We can deliver choice STAVES, HEADING and HOOPS, Liners, Nails, Trees Hoops, Tools, in matched car-lots delivered at any point.
QUANTITY—QUALITY — QUICK SHIPMENTS.
Moral—Always Get our Prices Before Buying.

Cheaper than Cornstalks
Protect Your Trees with
Veneered Tree Protectors
A positive protection against rabbits, mice, sun-scald, hot winds and barking by careless cultivation. Will last for years. Send for circulars.
$1 per 100, $6 per 1,000
10 in. wide, 20 in. long.
Hart Pioneer Nurseries
FORT SCOTT, KAN.
Wholesale Growers of Nursery Stock.

SEND TO
HOLSINGER BROS.
for prices on
RASPBERRY STRAWBERRY **PLANTS**
CUMBERLAND RASPBERRIES
brought 50 cents crate more than any other. We have plenty of them. Also Kansas, Gregg and Hopkins. Twenty leading varieties of Strawberries, and other small fruits.
HOLSINGER BROS.
ROSEDALE, KANSAS.



The Ryan is the only self-cleaning post hole digger and transplanter made. We warrant it to work perfect in all soils, wet or dry, light or heavy. No matter how stickey the soil is it can be cut out instantly by simply spreading the handles. Agent's price on two or more. J. S. BOLTON, sole manufacturer, Moline, Ill.

Broome Bros. WHOLESALE and RETAIL **Nurseries**
McLOUD, O. T.
We have a nice line of trees carefully grown and propagated from bearing trees that consist of the leading varieties of Apple, Peach, Plum, Cherry and Pear, that we will sell cheap. Correspondence solicited. Mention Western Fruit-Grower when writing for prices.
BROOME BROS., McLoud, O. T.

AGENTS WANTED
Wanted—Live energetic agents, with one or two-horse rig, in every county in the United States where hogs are raised to canvass and sell AMERICAN LIVE STOCK POWDERS, and the best Hog Cholera Remedy, in existance. We mean business and want hustlers; no street loafers and dry goods box statesmen, need apply. Address with references, AMERICAN LIVE STOCK POWDER CO., Shenandoah, Ia.

Wanted
TO EXCHANGE
Raspberry plants for Snyder and Early Harvest Blackberry plants. What have you to offer? HOLSINGER BROS., Rosedale, Kan.

MOTHERS Do you have to dry your children's bedding every day? If so, save this extra work by giving them ENURESINE.
SAMPLE FREE DR. F. E. MAY, Box 605 Bloomington, Ill.

AGENTS WANTED Liberal terms. Plattsburg Nursery, Plattsburg, Mo.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower.

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia..	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines..	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison....	.75	1.00
Poultry Farmer, Des Moines....	.50	.70

Give name and address plainly in each case.
WESTERN FRUIT-GROWER,
St. Joseph, Mo.

Reminiscences of Col. Park.

At the August meeting of the Missouri Valley Horticultural Society, Major Holsinger gave some reminiscences of Col. Park, in art as follows:

I see that we are to have some reminiscences of Col. G. S. Park, the first president of our society. Being possibly the only one of the original seventeen members present, a word from me may be of interest at this time.

Standing on the market square one Saturday morning, Spring of 1870, with a load of wood to sell, I was approached by my neghbor, a Mr. Armstrong, a tenant of Major Frank Baird, who accosted me thus, "Say, wouldnt you like to join a horticultural Society?"

I said "I guess so," not being certain just what it meant. "We're going to organize such a society and I'd like to have you go with me and join it," said he.

I slid off my wagon of horticultural product of bass or hickory wood, the only horticultural products I then dealt in, and accompanied him to the office of R. Y. Lewis, where were gathered Judge Lewis, Col. Fence, Sheffield and others.

This building was a brick, two-story structure, a saloon below and offices above; the most pretentious office building at that time in Kansas City. The room was well filled with, as I now remember, Lewis, Fence, Lewis. Baird, Sheffield, Mustard, Basley, Maloney, Wm. M. Hopkins, Z. S. Ragan, Bennett, Slocumb, Jones, Ray, Saulesbury, Armstrong and self. Sixteen of the seventeen that paid their first initiation.

Colonel Parks was represented by letter and wishing success to the enterprise. He was unanimously elected the first president, while I think Judge Lewis was elected secretary. Dr. Maloney, who then lived at Linwood, was elected treasurer; who the other one was that constituted the organization of the Missouri Valley Horticultural Society that day is, to me, a matter of regretted forgetfulness. Possibly Z. Todd or Abner Riminick. They were among the first to join the society.

Well do I remember our second meeting; as we were assembled, Col. Parks came in with a basket of Lawver. They were beauties and no mistake. All pronounced them the finest apple yet introduced. It is unnecessary to speak of one disappointment. The Lawver was a failure. At our first meetings, the coming of our president was a matter of great concern. We all idolized him. He was genial and jolly and on all horticultural subjects a master. His interests in Illinois required his attention and he was soon lost to us. This we regretted very much. The Cononel has joined (as have many others of our society), the great majority. A life time has passed since our organization; some of us have grown a little older, grey hairs have crept into the locks of quite a few. New people have joined their fortunes with ours; families grown surround us. Happy childhood, young manhood and womanhood with old age, meet together monthly at these meetings, enjoying the communion of fellowship, loving and reverencing each other. May they long continue. Let us not forget that the happiness we have enjoyed was due more largely to Col. Geo. S. Parks, as it was through him the Missouri Valley Horticultural Society had its existence.

The last time Colonel Parks was with us was some fifteen years ago. Hearing that he had returned, the society met with him in Parkville. To speak of Colonel Parks, of what he was and has done for Western Missouri, would require more time than can be crowded into one of our meetings. Of his early history ante-bellum, while editing a free state newspaper, would, if told as he told it to me, make a sensation. He was robbed, persecuted, his press destroyed, being thrown into the river, his life in jeopardy and saved only by leaving the country that he loved, in the night, until the question of slavery had been settled, when he could once more return and endeavor to rebuild his ruined home. How well he builded is known to all. Horticulture with him was a religion. Like many others he "had to be shown." His eastern tyes of fruit, the luscious Baldwin, Greenings, Spitzenburg, etc., had to give way to the course of Ben Davis. How he chaffed at the thought. "It ain't fit to eat," he would say and he never did plant it extensively. Yet by his planting some hundred varieties, did much to test their adaptability or impractibility to Western Missouri.

Col. G. S. Parks is the real father of the Missouri Valley Horticultural Society. The enthusiasm with which he infused the society made it a success. It is what he made it. It is an honor to him could he but know of what his society has accomplished, the good it has done society, the development of the fruit interest throughout the West, that from her loins were evolved the magnificent state societies of both Missouri and Kansas. The monument thus erected is more to his honor, more endearing than is the granite shaft just over the hill reared by the hands of kind friends to his memory. Out of the Missouri Valley Horticultural Society came the Olden Fruit Company up to that time the most collossal effort at fruit-growing. It caused the development of South Missouri giving to it "the home of the big red apple." It gave her the reputation of one of the greatest of peach sections, which it retains. Many new and promising fruits were brought out by its members, the "Hopkins Raspberry," the Lawver and Gano apples among the notables.

Two Good Orchards.

Just as this issue of the Western Fruit-Grower goes to press we learn that W. A. Hupert, buying apples for Porter Bros. of Chicago, has bought the fruit in the orchards of W. D. Maxwell, near St. Joseph, and J. W. Clark, near Amazonia, Mo. The price is said to have been a good one, for this house appreciates good quality fruit and is willing to pay for it.

"I believe we have bought two of as good crops of apples as are often raised," said Mr. Hupert to the Western Fruit-Grower. "The two orchards will yield five or six thousand barrels of apples, of which quantity about eleven or twelve hundred barrels will be Jonathans. The fruit in both orchards is certainly very fine, and I believe the Jonathans particularly will barrel 95 per cent No. 1. This is a remarkable showing."

Mr. Hupert is to be congratulated on his purchase, for we know of several other buyers who were after the fruit from these orchards, and on the day the sale was announced a belated buyer had arranged to visit Mr. Maxwell's place. Next month we hope to show some illustrations from these orchards and to have more to say concerning same. Both of these orchards were mentioned in the Fruit-Grower last year, on account of good prices realized for the fruit, and this good sale following the last season speaks well for the care the owners have given their orchards. Both growers sprayed this year and last. Mr. Maxwell sprayed eight times with dust spray; Mr. Clark five times with liquid.

Mr. Hupert hopes to buy some other good fruit in Northwest Missouri this fall.

Take a dose of Prickly Ash Bitters at night when you go to bed and you will feel bright and vigorous next morning. It will insure you a copious and healthy passage of the bowels, improved appetite and digestion and increased energy of body and brain.

It beats stimulating drinks because permanent.

This season there are practically but two varieties of pears. The Sudduth, which has not blighted and others which have.

Special One Way Colonist Rates.

$25.00 to California and Arizona points via Chicago Great Western. Tickets on sale daily during September and October. Five day stop-overs allowed at certain California points. Through tourist cars. For further information inquire of H. I. FAY, Ticket Agent, St. Joseph, Mo.

ADVERTISING PAYS.

We have had more calls for Sudduth Pear Booklets from an ad. in Western Fruit-Grower than from any two papers we have advertised in this year. We feel very proud of the record which the Sudduth is making this year, being free from blight when all other pears are suffering so badly, and the young trees bearing so nicely. Tell your subscribers to send for the booklet giving the history of the Sudduth Pear, free, no charge.

AUGUSTINE & CO., Normal, Ill.

Those who are interested in fruit, oil or mineral lands in Arkansas or Texas should write for a little booklet which has just been issued by A. P. Dyke, Hope, Ark., which has much information along this line.

Lee's Summit Star Nurseries

"Growers of a Complete Line of General Nursery Stock, Varieties especially adapted to the Soil and Climate of the Middle West. Everything hardy and grown out of doors."

Through an oversight of the printers of our Descriptive Catalogue the description of the Carolina Poplar was left out but in our Nurseries no such neglect goes and our supply of this popular Poplar is all that we could wish—equal to your wants.

Six fine blocks of Carolina Poplar (as many Soft Maple and others in proportion) gives us the assortment of sizes. Each tree strictly first-class of its own grade. Read our remarks on shade trees on page 25 of the Blue Catalogue and then note our prices on the different sizes in the price list. These prices represent just what it cost to grow these trees as they should be grown with a legitimate margin for profit. NURSERY GROWN SHADE TREES grown in up-to-date Nurseries, planted, transplanted, cut back, pruned, cultivated—all at just the proper time gives a shade tree a health and vigor not found in trees grown wild either in the Forest or in a neglected Nursery.

CAROLINA POPLAR

The best of the Poplar family and a decided favorite shade tree for park and street planting. A hardy, healthy, native tree of rapid growth, pyramidal in form, with large glossy leaves; has stood the test of gas and smoke in our large cities. Comparatively free from insects and disease. Not like the tall growing Lombardy Poplar but a good mate for the well know Soft Maple.

If you have not, you ought to have copies of our
BLUE DESCRIPTIVE CATALOGUE—48 pages describing what we grow.
CHERRY TREES—A four-page circular tells what, why and how.
DUTCH BULBS for Fall Planting and Flowers in the Early Spring. Describes Tulips, Narsissus, Hyacinths, Crocus, etc., and gives complete directions for their culture.

Next Month—"Rambler Roses"

CAROLINA POPLAR.

M. Butterfield & Son, Proprietors
LEE'S SUMMIT, MISSOURI

Apple Barrels Grape Baskets

We are prepared to furnish the foregoing in any quantity. Send list of your wants for prices. Stock of all kinds should be ordered early as possible.

Merchants Basket and Box Company
ST. JOSEPH, MISSOURI.

W. T. LETTS
1809 S. 4th St., St. Joseph, Mo.
Apple Barrels, Boxes and Crates, Farmers' Egg Cases and Fillers.

BOX AND COOPERAGE MANUFACTURER
NEW PHONE, 764. LONG DISTANCE, 1003.

APPLE BARRELS

Cider Barrels and Kegs
Syrup Barrels and Kegs

Long Distance Phone 257

J. A. Schroer & Co., St. Joseph, Mo.

Woodview Nurseries

Want every reader of the Fruit-Grower to have one of their catalogues. Write now. If we had your address we would write to you. We have the "Sweepstakes" in trees for the orchard.

Woodview Nurseries
Box 102 Uriah, Pa.

Apple Trees

Wholesale and Retail

Full assortment, all grades. General assortment of other stock, shade trees, evergreens, etc. Apple specialties, Moyer's Prize, Winter Banana, Downing Winter Maiden Blush, Bismark, etc. Send list for prices. THE LAKETON NURSERIES, Laketon, Ind. G. N. MOYER, proprietor.

Two New Strawberries

We will introduce this coming season two new strawberries. They will become leaders when known. For circulars, address HUBACH & HATHAWAY, Indsonia, Arkansas.

W. H. Byerts, Socorro,, N. M., writes that he has some good apples and that there are other orchards in that section. Growers wish to sell fruit on the trees and will be glad to hear from buyers.

THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

Volume Twelve SEPTEMBER, 1902 Number Three

W. G. CAMPBELL, JR.....Manager
JAMES M. IRVINE.....Managing Editor

Chicago Office.....405 Schiller Building
W. B. Leffingwell, Manager.
New York Office, 928 Am. Tract Society Bldg.
W. B. Leffingwell, Manager.

ADVERTISING RATE:
Per Agate Line.....10 cents
Fourteen lines to the inch.

No advertisement in class generally termed "objectionable" received under any conditions. Editions are mailed on the 15th of each month. Forms close on the 8th.

Subscription—One Year, 50 Cents Three Years, in Advance, $1.00

Remit by U. S. Coin, Postoffice Money Order, Express Money Order, Registered Letter or Bank Draft. Send stamps only as last resort. All remittances at our risk.

Unless otherwise ordered, subscription will commence with month following date of remittance, and continued until ordered stopped and arrearages paid. If you desire paper to stop when time is up, notify us. The letter "S" after date on your address tag signifies that paper will stop on that date. The address tag stands as a receipt for your remittance. No other receipt will be sent except on special request or with clubbing or premium ofers.

In compiling a list of over Twenty Thousand subscribers it is an easy matter to make mistakes, but we guarantee fair treatment to everyone. If you find an error in your address tag, or do not receive paper promptly, write us and we will trace matter up at once.

Entered as Second-Class Matter in the Postoffice at St. Joseph, Missouri.

Reports from correspondents this month confirm our position a month ago in regard to size of the apple crop and the prices which should be paid. Buyers are unwilling to pay what the growers ask, who do not seem to be unreasonable in the price they are making. The most general belief among growers is that fruit suitable for cold storage is worth 50 cents a bushel in the orchard, and we doubt not this will be paid. But some growers have their ideas too high. Last year many buyers lost money and are naturally very cautious, and will not pay the price whch some growers demand. It must be remembered that the buyer takes a risk, and is at considerable expense for barrels, packing, freight, storage, etc. It is not a good plan to try to make it all and not allow the buyers their share of the profit. But at $1.50 a barrel for the fruit, we believe buyers can make good money, and that the fruit is worth this sum this year.

Elsewhere in this issue is a report of the conference of apple growers which was held at St. Louis last month. It will be noted that a general meeting is called for November 18, to which every apple grower is invited. The value of the proposed American Apple Growers' Association depends on the apple growers themselves. If they take an active part in the work of the association, will attend its meeting and make reports concerning crop, etc., the organization can be made of great value to the apple growers generally. But if only a small percentage of the commercial growers help to push the association, its influence will not be far-reaching. The need of such an organization is apparant to almost anyone. Apple-growing is getting to be a specialty, and there should be an organization of specialists to consider its needs. Then when there is a crop to be marketed, every grower should know about the size of the crop with which his fruit mill have to compete. At present there is no systematic reporting of the crop, on the part of the growers, and many times they are left in the dark as to the quantity of fruit to be marketed. Growers have not taken hold of the matter of making reports to the Western Fruit-Grower for publication with the readiness which the importance of the matter warrants, but our reports have been of great help this season. When every apple section is thus covered, there will be little need for many of the errors of the past in marketing apples.

Have you joined our "Thousand Club" yet? If not, you ought to enroll your name at once. This club is composed of those who will agree to get at least five new subscribers each before January 1, 1903, under our offer of five subscriptions for $1. We count on all interested in horticulture to help build up the circulation and influence of the Western Fruit-Grower, for the paper can be of more help to growers as its circulation extends. Think what it would mean if all the apple growers of the country had our fruit reports every month, with reports from all sections as to prices, etc. Don't you think then the growers would be well represented? Everyone can help in this work by helping extend the circulation of the paper; then more people will be brought together in their ideas concerning size of crops, prices, etc. Show your interest by enrolling in our "One Thousand Club" and getting five new subscribers.

Missouri has more apple trees than any state in the Union. While in Southern Missouri recently we thought of the part which railroads have taken in the planting of these orchards, for they have been the chief promoters of the enterprise. Missouri fruit-growers have always had the support of at least two great railway systems in this state—the Frisco system, which includes the old Memphis lines, and the Missouri Pacific. These roads have a standing offer of one fare for the round trip for all horticultural meetings held on their lines. There is no quibbling as to the number who will attend—the rate is ready whenever the horticultural society decides the time and place. And at all times the management of these lines are ready to listen to complaints from fruit-growers when the latter feel that they have a grievance. The Missouri Pacific company, on several occasions, has conducted farmers' institues, at its own expense, along its lines, and the Frisco company transports cars with exhibits of spray pumps and appliances free over its road, to acquaint farmers with the use of pumps and the value of the same. When considering the causes which make Missouri a great horticultural state, do not overlook the work of these two great railway systems—the Frisco and the Missouri Pacific.

Those who have been reading the Western Fruit-Grower for some time will recall the numerous mentions we have made of one J. L. Anders who has operated in various parts of the South, selling bogus pecan trees and accepting money for goods which he made no pretense of delivering. This man is a fraud of the worst sort, and has finally been landed behind the bars, charged by Uncle Sam with using the mails for fraudulent purposes. He is in jail at Savannah, Ga., and will be tried in October. Anders used several names, them Andrus, Andrews, etc., but whatever the name he was a fraud. The Western Fruit-Grower first called the attention of the postal authorities to this monumental fraud, and published him as such. Now he is to be tried for his deeds, and about 400 persons who sent him money will testify against him. If there are any of our readers who have good claims against him will make that fact known they may help in securing a sentence in the penitentiary for this rascal. Truly the way of the transgressor is hard. We wish to thank those of our readers who furnshed the first evidence which was laid before the postal authorities. By pursuing this policy a stop can likely be put to the operations of this class of felows.

Secretary Bryant of the Illinois Horticultural Society has sent notices to the members of the society, reminding them of the annual meeting, to be held at Champaign, December 17 to 19, 1902. Mr. Bryant urges the members to save some choice specimens of fruit at picking time and place in storage, for exhibition at the meeting. It is expected to make the fruit display this year the best the society has ever made. Missouri and Kansas growers should also take steps along this line. The Missouri meeting will be held at Springfield and the Kansas meeting at Topeka. At each of these places there are good storage houses, and fruits can be placed in cold storage to hold for the meeting. Nebraska and Iowa growers are also making preparations to make fine exhibits of apples, as the crops in these states are better than they have been for some time, and it is likely there will be many fine exhibits of apples in the West this year, for the fruit is fine.

More subscriptions to the Western Fruit-Grower expire between the present time and April 1, next, than at any other time during the year, and we urge our readers to renew promptly. The subscription price is a small matter to each one, yet the amount is considerable in the aggregate to us. Many improvements are contemplated for the coming season, and we will appreciate remittance of amounts due, that we may be able to carry out our plans. Look at the date on your address slip, and see when your time expires. If it is out now, send your renewal at once, and if possible send some new subscriptions at same time. Remember that we accept five new subscribers, where sent in at one time, for $1, or ten for $2. If you send ten, we will extend your own time one year free of charge. Let us hear from all those whose time is out.

The Western Fruit-Grower is almost willing to stake its reputation as a prophet on the prophecy that farm lands in Missouri will advance in value 25 to 35 per cent within the next three years. There never was a better time to invest in Missouri soil than now, and the wise ones are doing this very thing. The big crops of the present season, the World's Fair to be held within the limits of the state, and the record the state has made at other exhibitions, all contribute to help advertise the state. Farm property has been selling too low—much lower than land not so good in other states—and the state will now take its place where it rightfully belongs. We predict a great boom in Missouri farm lands immediately, and prices will advance rapidly.

Prof. A. D. Shamel, instructor in farm crops, University of Illinois, has issued a neat pamphlet entitled, "Manual of Corn Judging," which should be of the greatest value to those who are interested in the breeding and judging of seed corn. Prof. Shamel is exceptionally well qualified to discuss this subject, and the book he has issued is certainly most timely. The booklet is well illustrated and the printing is exceptionally well done. Corn growers are devoting much thought to the improvement of varieties, and this booklet will do much to further the work.

One of the great events of the near future will be the opening of the lands of the West which are to be irrigated by the government, under the irrigation bill. This will mean more homes for thousands of settlers and more extensive cultivation on their part. There is much interest now in the subject of irrigation, and the census bureau of the government has just issued a bulletin giving facs developed by the last census. In 1899 there were 7,539,545 acres of land under irrigation, exclusive of the rice states. Of this area, 5,944,412 acres were planted to crops, the remainder being in pasture and immature crops. The value of crops produced was $86,860,491, and the total cost of installing the irrigation plants was $67,770,942, showing that in one season the value of crops produced exceeded the total cost of all the plants. Colorado leads in irrigated lands, California second. Perhaps more irrigating ditches will be dug in Colorado in next decade than in any other one state, and this state is destined to stand at the top of the list.

50 Different Bulbs all for 30c.
By mail with cultural directions, for garden or pots.
1 Golden Sacred Lily.
2 Tulips, 1 d'ble, 1 single.
2 Narcissus, " "
3 Belgian Hyacinths.
3 Grape Hyacinths.
3 Giant Crocus.
3 Star of Bethlehem.
3 Oxalis, 3 sorts.
3 Ixias, 3 sorts.
3 Sparaxis, 3 sorts.
3 Alliums, 3 sorts.
3 Triteleia, white star.
3 Saxifraga, double white.
5 Giant Ranunculus.
5 Spanish Iris.
5 Freesias, mixed.
All different colors, and fine flowering hardy bulbs.
Also Free to all who apply, our elegant Fall Catalogue of Bulbs, Plants and Seeds, for Fall planting and Winter blooming Choicest Hyacinths, Tulips, Narcissus, Crocus, Lilies, Plants, Shrubs and Fruits.
New Winter flowering Plants and Bulbs, Crimson Daisy, Blue Coleus, Cardinal Freesia, Branching Tulip, etc.
John Lewis Childs, Floral Park, N.Y.

Apple Seedlings
Iowa grown; grown from Vermont natural seed on new clean land, free from aphis, root gall, or any other disease. Grape vines the largest and best stock in the country. Apple, Cherry, Plum, Pear and Peach trees, Currants, Gooseberries, Raspberries, Blackberries. Send for Price List.
SILAS WILSON, Atlantic, Ia.

Knox Nurseries
We wish to call your attention to the fact that we have a fine lot of one year old CHERRY TREES for Fall delivery. We ask particularly the attention of planters to our CHERRY. They will suit you we know and will give better satisfaction than the two-year-old trees. They are not so tall as the two-year trees, but they are thrifty, stocky, well rooted from three to five feet high. We also offer Peach, Apple and a general line of nursery stock.
H. M. SIMPSON & SONS
VINCENNES, IND.

BLACK LOCUST
Eight hundred thousand at the
Orton Nursery, Kiowa. Kan.
For Fall or Spring Delivery.
6 to 12 inches, $2.50 per 1000.
12 to 18 inches, 3.50 per 1000.
18 to 24 inches, 5.00 per 1000.
Write for special prices on large lots; also for free descriptive catalogue of general nursery stock. I sell direct to planter and save you agent's profit. Replace free of charge; and prepay freight.
F. B. ORTON, PROP.
ORTON'S NURSERY, 8 miles southeast of Kiowa, Kan.
Please mention the Western Fruit-Grower when you write.

HOYT'S TREE SUPPORT
is far superior and much cheaper than wooden props. The limbs are made to support each other. Neat, indestructible, permanent.
WOODEN PROPS ARE IN THE WAY ALL THE TIME—THESE, NEVER.
We guarantee perfect satisfaction. Sent C. O. D., expressage prepaid, for $20 per thousand. Circulars. NOVELTY FRUIT CO., Watsonville, California.

TREES
FOR FALL OF 1902 AND SPRING OF 1903
We offer a large and choice line of General Nursery Stock.
Special attention is called to the following:
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The Apple Market

There are two classes of people who are now in an unsettled condition—the man who buys apples and the one who has apples to sell. Two years ago the crop was overestimated, and a storm greatly reduced the crop. Fruit was bought low and nearly doubled in price before the holidays. The growers felt that they had not received enough for the fruit—and they hadn't.

Last year, owing to the drouth, the crop was underestimated, and besides this many packers who bought fruit on the trees in a lump used bad judgment—and as a consequence the buyers, in many cases lost money, and one or two firms were unable to meet their obligations.

And this year all are at sea. What are apples worth? is the question. In our reports this month we asked what buyers are offering and what growers are asking. This will help to show the feeling.

From our standpoint, we believe we did not overstate the case last month, when we said good cold storage stock ought to bring $1.50 a barrel in the orchard, buyer to furnish barrels and pack. The reports this month indicate this is conservative.

We saw a letter last week from a buyer who has been through New York, and he says the crop is not near a half crop, the state over, as compared with crop of 1896, and not so many apples as there were two years ago. And this estimate is from a buyer, too.

Another buyer says situation in New York is unsettled, as growers hesitate to accept prices offered. By having a number of stations to operate from, however, the buyer says his firm has secured about what it needs, and price will average about $2 a barrel f.o.b. "There is not more than 20 per cent of fancy stock here, 40 per cent of a good crop, and balance showing fungus badly." And that is from a buyer, and a large one.

The buyers have been looking for Jonathans in the Missouri Valley, but hesitate to quote prices on other sorts. H. A. Squires, Wallace, Mo., has sold his fruit in the orchard, by the barrel. He receives $2.15 a barrel for his Jonathans, No. 1s and 2s, buyer to pack and furnish barrels. He gets $1.40 a barrel for his Ben Davis, No. 1s and 2s, buyer to furnish barrels and pack. W. R. Roundtree has sold the fruit from three and a half acres of Jonathan trees for $1,250, buyer to furnish everything. Buyers take Jonathans, but Ben Davis, from present indications, will not bring near so much money.

The foregoing show something of the feeling in the Missouri Valley, and also give an idea of what prices are being quoted at this time. More growers than usual are asking for prices for barrels, cold storage, etc., for they say that unless they can get what they believe is a fair price for their apples they will store them and sell later. They want at least $1.50 a barrel for their fruit in the orchard, for all stock fit to store—and most of it is of that kind this season.

Growers should decide at once what they will do with their fruit. In this issue we present a list of apple buyers which includes most of the extensive handlers of fruit. If you wish to sell, make arrangements for the sale at once. If you will store the fruit, get barrels ready and arrange for storage. Apples should be placed in storage just as soon as possible after they are picked from the trees. The best experience of the apple handlers is that the sooner the fruit is in storage the better it is for its keeping qualities. Don't pile on the ground to "sweat," but grade carefully and put into clean, new barrels and then rush off to the storage house. Handled thus, it is believed this year's apples will keep unusually well.

Speaking of apples, the Wealthy has made another good record for itself in Northwest Missouri this year. Herewith we present illustration showing twigs taken from Wealthy tree, showing how the fruit literally grew in clusters like grapes. These were grown by Lozier & Morris, Carrollton, Mo., who write that three apples were lost off in bringing the twigs to town, and that on many larger limbs there were even more apples than on these. The fruit grew to a great size, for one-third of them were gathered several weeks before the bulk of the crop. The largest and best-colored apples were taken off, and those left on the trees developed remarkably.

G. T. Tippin bought Wealthy apples near Chillicothe, and says he believes he shipped the handsomest car of apples which ever went out of the state. H. A. Squires, Wallace, Mo., sold his Wealthy apples at $2 a barrel, and had

a fine crop. Individual trees had as many as seven barrels of sound apples, bringing $14 for the tree. Mr. Squires also had Summer Queen to make as good a record. On the St. Joseph market Wealthy apples sold at 90 cents and $1 a bushel, and the demand was excellent. The variety is one of the very best late summer apples for this section, and is so well known that where they can be bought in car lots the demand will be excellent.

The orchard of Mr. Squires, above referred to, is making a good record for itself. He has 25 acres of apples, 18 acres bearing. He has sold $1,000 worth of summer fruit, and has engaged his winter fruit at $1.40 a barrel for Ben Davis and $2.15 for Jonathans. He estimates 1,000 barrels Ben Davis, but not so many Jonathans. But about $2,500 from 18 acres is a good yield. Mr. Squires has used liquid spray until this year, when he used the dust. He sprayed nine times with the dust, and believes the process has come to stay.

Pure Grape Juice.

There will be thousands of tons of grapes all over the country ripening this year, that with great profit might be turned into grape juice and kept on the farms where the grapes are grown. Fresh grapes are very nice and every one enjoys them in season, but they do not last long enough. We should try to prolong their season by every practical method, such as cool storage in our fruit cellars, but there are many months when the pure juice free from all fermentation and drugs will be very acceptable. Nor is it difficult or expensive to make.

The old way, and the one that we followed at our house for many years, was to take the grapes off the stems and heat them before pressing. This made a dark and murky juice, which we made still more unpalatable by adding sugar to it. We heated it to the boiling point, bottled it, and thought it a delicious drink, and so it was. But we have found an easier and cheaper way to make a better article.

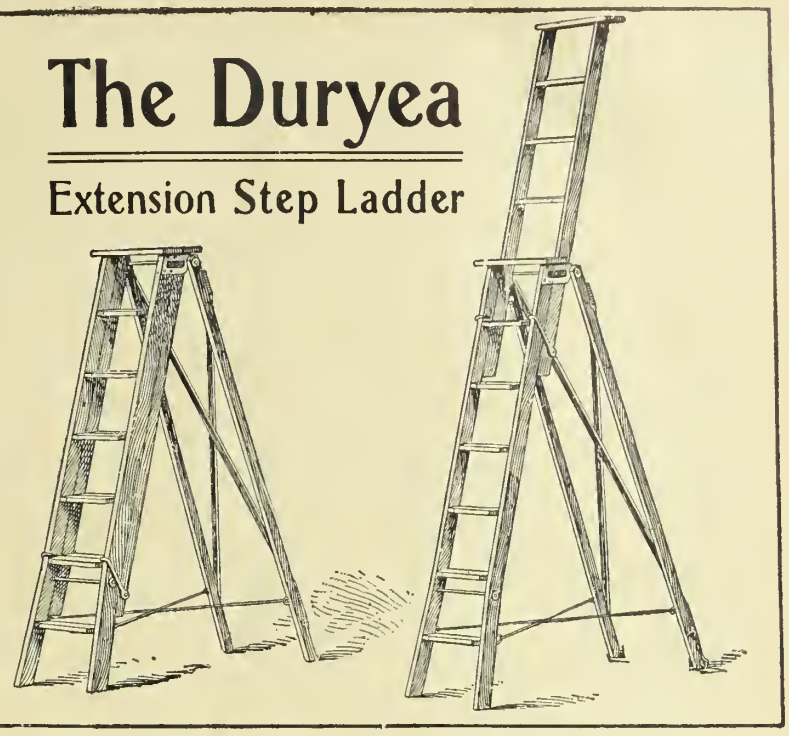
The new way is, to put the fresh clusters, after all bad berries are taken off, into a cider press, with a coarse cloth next the cage, and press out a part of the juice very lightly. As soon as it begins to get dark red the pressure should stop and all the juice so expressed be kept by itself and put on to heat. Test it by a thermometer and when it reaches 175 degrees bottle it at once, without any sugar or other thing in it. If it is brought to the boiling point it will lose the delicate grape flavor and have a cooked taste. The bottles should be kept hot in boiling water and the corks, too, so that there will be no lurking germs of ferment left. Their tops should be dipped in melted wax to make them still more secure from the air.

The darker juice may be pressed out as long as any of consequence remains in the pulp, but this should be heated and bottled by itself. It will not have the mild flavor of that first extracted, but some may like it better, and I have found this to be the case, occasionally.

Grape juice made in this way needs no sugar at any time nor any dilution when the bottles are opened. It is mild and entirely harmless. There is no beverage that is better for the sick or well. Every grape grower can have it at little cost. It is the essence of the grapes without the bothersome and useless seeds and skins.

H. E. VANDEMAN.

The Duryea
Extension Step Ladder



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STRAWBERRY GOSSIP

THE time has now come to stop deep cultivating among strawberries. Indeed, I think it came some time ago, but is certainly here now. As the weather gets cool in the fall, the strawberry plants, which have been sending their roots down towards the dampness and the coolness, begin to send them out almost horizontally under the surface of the soil. They go quite a distance, and deep cultivating near the plants cuts them off. Therefore it should be discontinued. It makes little or no difference to the plants how deep the cultivator is run out in the spaces. But deep cultivating makes a large mass of loose earth which will take up water like a sponge during the fall rains and winter snows if the land is heavy. On sand, of course, the water will soak down. The more water there is in the ground in winter the worse will be the heaving. It is on that account that I would rather have the ground pretty solid so that the surplus water will run off.

The chances are that most of the rows of plants are already thick enough and many of them are too thick, and runners are still coming out. Plants set rapidly in the fall and many little plants that go into winter quarters with scarcely any roots will come out fairly well rooted, adding to the number of superfluous plants. If one can take time, it is well to go in now and make a thorough cutting of runners. It is exhausing to plants to send out runners and support young plants till they can take care of themselves, and this exhaustion is utterly useless when the additional plants are not wanted.

Where the rows are too thick it is desirable to get in pretty soon and cut out the superfluous plants, leaving good ones six or eight inches apart. It were better that these extra plants had never been allowed to root, but we cannot always do the best. We may be very glad if our methods are even second best sometimes. This thinning out is Mr. Terry's method, and he has a pretty good way of doing everything. Moreover, he is practical and takes into account that men have something else to do than merely to take care of a strawberry bed, and that they cannot always do things just as they want to. A row thinned out in this way, with only good plants left and enough room for each of them is in shape for fine results next year, if it only gets the little additional attention it needs. That attention is mostly in the way of winter protection.

In a few weeks now the leaves will begin to fall in the orchards and woods. That is the time when Nature does her mulching. It is the best time for us to do ours too. The period of active growth is then over, the months of rest are ahead. If the strawberry plants had been growing wild, the long bluegrass would be dying around them and the annual weeds and leaves from the bushes would be almost burying them. The early freezes would not reach their roots, and, when the real cold weather of the winter months came, the ground about them would freeze hard and remain frozen. This is the whole secret of carrying plants through the winter safely—not to keep them warm, but to keep them from freezing and thawing alternately and heaving out.

The best time to apply winter protection is when the leaves fall, and the leaves themselves are about as good as anything for that purpose if they can be handled economically and kept on the patch. There is the trouble. They are excellent for the little garden bed, where the buildings and shrubbery break the sweep of the winds, but in the open field they are almost sure to blow away unless something like brush or cornstalks is laid on them. Moreover, it is no small job to gather and haul enough leaves to cover a patch of any considerable size. Straw is good, and rough manure is better, but not so easy to apply. The plants themselves should not be covered so early, merely the ground between them. At any rate that is the general practice. I have seen plants, covered in October with gladiolus tops thrown on them in digging, come through the winter beautifully, but it is not generally considered safe to cover the leaves till winter comes. It is not really necessary to do it then, perhaps, but it is safer and better. The plants will scarcely heave with the ground thoroughly shaded, but they may winter-kill. That is something that comparatively seldom happens, but in sandy land, especially in an exposed place, it is liable to do so. If the leaves are exposed the plants keep drawing water from the earth all winter and giving it off by evaporation. After a long steady cold spell, the frost creeps down to the very tips of the roots. Encased in frozen earth, they cannot get moisture from the soil, and the leaves give off a considerable part of what there is in the plant, which is weakened or killed from actual drying out. A mulch between the plants helps prevent this by keeping the frost from getting down and by conserving the moisture in the soil so that the supply lasts longer; but a mulch over the leaves is more effective by stopping the evaporation.

The man who has sandy land has some great advantages, especially in winter. The subject of drainage does not bother him, but it is a serious matter to the worker of heavy soils. Of course, under ideal conditions the land would be thoroughly underdrained and that would be the end of most of the trouble. But conditions are not ideal. Some of us have not had the time and many of us have wanted the capital to do underdraining. The next best thing, and a very necessary one, is surface draining. Where land slopes and no water stands there is not much of this to be done, but where it is nearly level or has some depressions, the drainage ought to be attended to in the fall. Strawberry plants can stand it to be under water for some time in the winter, but those on the edges of the low places, where the ground is saturated, can scarcely be held down by an ordinary mulch. A few drains should be dug if necessary to let the water off. Where the land was plowed in narrow lands the dead furrows will frequently suffice, but it is sometimes necessary to open them at the end or dig a cross-ditch in a low place so that they can discharge water freely. If there happens to be a wet fall and this is neglected till freezing comes, there are likely to be some plants badly heaved.

I had a short call the other day from a friend who has been in the strawberry business only a couple of years. He is an energetic, wide-awake man who is always looking for information. Like anybody else, he sought advice from experienced growers concerning varieties, but he was shrewd enough to start testing at once for himself, and now he is very glad of it. A year ago he bought some Clyde plants because a neighbor thought it was about the greatest thing that ever happened. Lasts summer they set an enormous amount of fruit and it cooked in the sun and he got very little that was marketable. It acted that way with us two months after he bought his plants and last spring I advised him not to set any more until he had seen it in bearing. That was all right in his case, but if I had told some other people the same thing, I might have deterred them from planting what would have proven with them a most valuable variety. He bought some Minute Man plants last spring. When we came to dig that variety, we found the plants to be about the poorest on the place, and I advised him not to plant many. When it fruited, it turned out to be a good thing, and he finds it one of the finest growers on his place. He has learned thus early that advice on varieties is of comparatively little value. It is very good for people to tell how varieties have done with them. If nearly all report favorably on a variety, the presumption is that it is good, but it is only a presumption and likely to prove incorrect in any individual case. Every grower must run his own little experiment station if he wants to know what is good, and

That is the whole trend of modern teaching anyway. When I was a

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school boy we studied botany and learned definitions and other dry things. Now the children take "nature study" and learn flowers and plants themselves. The definitions may follow or not, but the children have learned to use their eyes, and that is more important. We older children may read books till we are full of information and then go out and miss the things that would make our work successful if we only were bright enough to see them. I know I do not observe enough, and I believe there are plenty more like me. If there were not, one would not find experienced people surprised to learn what a novice ought to have seen. There are some things a person must be trained to see and many from which only a trained person can draw correct conclusions. That is one reason why the experiment stations are so valuable. They get data that an ordinary grower does not know how to get and enough of them to enable the drawing of a correct conclusion. A practical grower without scientific training will observe a few things and jump at a conclusion that is likely to be wrong. Most of us are not scientific and we must take a good many things on other people's say-so; but, if we make the mistake of depending on others for what we can do ourselves, we are likely to make some sad failures.

We gather up scraps of knowledge in one place and another and they have some value. Then we read a book on some subject and the various scraps relating to that subject arrange themselves in groups and relations appear among them and our knowledge becomes scientific to some slight degree at least. But the parts of that knowledge we remember and make most use of are the parts we learned for ourselves. The spring, summer and fall are the times for us to learn most by observation. The winter is the time when it would do us good to read a connected treatise on some of the subjects in which we are interested, get our knowledge classified and learn the causes or effects of some of the things we have seen.

We see a great deal in the newspapers at the present time about the extension of the foreign market for American goods. That is a subject in which we are interested. Philanthropy and patriotism aside, it is to our interest to have the men in the cities employed, the merchants prosperous and the farmers making money and spending it, as, under these conditions, the people of the cities and villages have money with which to buy fruit and we are not troubled with the competition of unemployed men entering our business. But another subject has more immediate interest for us. That is the extension of the home market for American strawberries. It is a part of our business to make people spend their money for our goods. We cannot employ agents, as a rule, to drum up trade. We must adopt other methods, and the most practicable is to furnish the public the class of goods it wants. I read the other day that some American manufacturers were having trouble introducing their goods in Central America because they would not put them up in the class of packages the dealers there preferred. It appears to me that some of us make a similar mistake. We practically say to the public, "You take such fruit as we offer or go without." And the public goes without more frequently than it is to our advantage to have it do. People who buy fruit like to have it good to eat. Still there are market growers who care nothing whatever about the quality of a variety. So long as it has size, appearance, productiveness and firmness, it may have the quality of a green apple and it apparently suits them just as well. They go on the idea that the buyer will not learn the quality till he has taken the fruit home and tried it. That does once or maybe a hundred times, but it is not the way to get people to consume more fruit. It is conceiving the public as liking to be fooled time after time. I know a man who grows the varieties his customers want. He gets top prices and makes money though some of those varieties are not prolific and are not what would generally be considered profitable. In the same city are other growers who grow fine looking berries and sell them on the general market at prices with comparatively little profit in them, because their berries are not known or are not known for their good quality at any rate. The man who has the money to spend has the whip hand. He expects the person who would sell to furnish him what he wants and in the shape in which he wants it. The grower wants to separate that man and his money, and the way to do it is to offer him something he wants worse than the money. The smart grower will cater to his wishes, even though they be whims. He will furnish berries big or medium, dark or light, in quart boxes or two-quart handle-baskets, as he may want them, and they will be good to eat. A big, soft, light insipid berry may furnish the most quarts to the acre, but it is the dollars to the acre that count. It is not today's sales alone that are to be considered but those of tomorrow and next season. One grower contributes a very small part to the supply of a large market. Nevertheless that market is supplied by an aggregation of individual growers, and as each does his share towards extending or killing trade so will the aggregate result be.

WILLIAM S. CRAWFORD.
Cuyahoga Falls, Ohio.

If you eat without appetite you need Prickly Ash Bitters. It promptly removes impurities that clog and impede the action of the digestive organs, creates good appetite and digestion, strength of body and activity of brain.

This season there are practically but two varieties of pears. The Sudduth, which has not blighted and others which have.

These Have Apples for Sale

J. S. Hamm, Weston, Mo., has some good apples which are for sale. Several thousand barrels of apples can be had at same station.

Henry C. Smith, Falls City, Neb., has a crop of apples which he would like to sell in the orchard. Other orchards in vicinity.

Ernest E. Smith, 214 East Missouri avenue, Kansas City, Mo., has some apples at Lee's Summit, Mo., for which he wishes a buyer.

W. R. Taggart, Meriden, Kan., writes that there are several thousand barrels of very fine quality apples available at that point.

S. L. Pyle, Wymore, Neb., reports some excellent apples in that vicinity, and says growers want to hear from buyers who want choice fruit. Those interested will do well to write him.

Apple buyers will do well to write to W. L. Culver, Grayson, Mo., who has 35 acres of commercial winter apples to sell on the trees. The fruit has been sprayed, and those who have seen the crop pronounce it as being extra fine. The orchard is right at shipping station of Culverton, Mo., between St. Joseph and Kansas City. Mr. Culver has a reputation for growing good fruit, and doubtless something choice is offered. Address W. L. Culver, Grayson, Mo., for particulars.

J. C. Randell, Hamburg, Iowa, will have about 1,000 barrels of fruit on trees just coming into bearing, which he says is good. Buyers in that section will likely do well to look at this fruit.

David Krehbeil, Lawrence, Kan., has an orchard near Steelville, Mo., which promises a fair crop, and wants a buyer. G. I. Dunlap, Steeleville, Mo., has charge of the place, and either he or Mr. Krehbeil can be addressed by buyers.

NOTES.

The Anguish Orchard Co. is the name of a Boston company which will plant large peach orchards near Rush, Texas, near the 9,000-acre tract of the company of which Roland Morrill is manager. The new company has bought 8,000 acres of land.

Prof. F. A. Waugh, formerly of Kansas, but recently horticulturist of the Vermont experiment station, has been appointed professor of horticulture at the Massachusetts State Agricultural College, succeeding Prof. S. T. Maynard. Professor Waugh has many friends in the West who will wish him much success in his new location.

Luther C. Tibbets, to whom California owes the navel orange industry, died in the poorhouse at Riverside, Cal., in July. This man distributed the scions of the navel orange in California, which was the best thing which ever happened to the state, bringing millions of dollars to the commonwealth, and died a pauper. Truly, history has repeated itself several times in like instances.

Our readers should not conclude that because one of the pecan tree sharks is in jail all others who advertise are reliable. We understand there are some frauds at work in Louisiana, promising pecan trees to bear at four years of age and to pay a profit from that time forth. Don't believe them. J. L. Anders, whose operations were brought to attention of the postal authorities by the Western Fruit-Grower, was not the only pecan tree fraud.

The Corn Belt, Chicago, Ill., in its August issue, has some excellent illustrations showing farm scenes in the Western states, and statistics concerning the bumper crops raised there this year. This publication is issued by the Burlington railroad, and among other scenes in the number mentioned are some excellent views of the country in Wyoming which this road is opening to settlement. Some of the finest irrigated farms of the future will be found there. The August issue of the Corn Belt will be sent free to those of our readers who write for same. Address Corn Belt, Chicago, Ill., or L. W. Wakeley, G. P. A., St. Louis, Mo.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.
PAW PAW, MICH

THIS IS J. R. WATKINS,

the president and founder of the J. R. Watkins Medical Company, Winona, Minn., U. S. A., the proprietors of the world famous

Watkins' Remedies.

You will find this picture of Mr. Watkins and his signature as above on every label, wrapper, cartoon and package of Watkins' Remedies. It is the trade mark—the stamp which marks the genuine from the spurious and worthless. Some unscrupulous men will attempt to sell you other preparations for the genuine Watkins' Remedies. They will declare that others, which they are trying to sell, are "just as good" as Watkins' Remedies. In order that you may not be deceived we put on the picture and this signature to protect you from fraud. Always insist upon the genuine, with the portrait and signature of J. R. Watkins, as above. Take no others, for no others are so good as the original and only Watkins' Remedies.

Free! Free! Free!

We mail free to any address "Watkins' Home Doctor," an illustrated book of 100 pages, the finest of the kind ever printed, containing much valuable information, interesting, instructive and humorous reading matter, astronomical calculations, weather forecasts, first-class cooking recipes, and matter relating to farm and home; in short, something for every member of the family, old or young.

The J. R. Watkins Medical Co.,
86 Liberty St., Winona, Minn., U. S. A.

Commercial Orchard

MISSING LINK APPLE CO.

NURSERYMEN CLAYTON, ILL

Successful commercial orcharding depends upon the following factors:

First—Trees must be true to name.

Second—Trees must be grown on Nature's plans.

Third—Trees must be properly dug and packed, so as not to lose their vitality.

Fourth—Varieties must be adapted to soil and climate before congenial environments exist.

Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.

Sixth—There must be a mutual consideration of each other's interests between nurseryman and planter.

Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees. You are especially invited to call and see our stock and examine our bearing trees.

Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.

Agents wanted in every locality. Call on or write us for prices.

Yours for mutual pleasant and profitable business,

New Haven Nurseries

NEW HAVEN, MO.

Location, 67 miles west of St. Louis, on main line Missouri Pacific Railway.

We are on the market for Fall of 1902 and Spring of 1903 with over one and a half million fruit trees. They will be grown to the highest possible standard. Will book orders now at lowest prices and would advise early contracts to secure varieties and grades wanted.

A personal inspection of our stock is invited. 200,000 of our two-year Apple are all on heavy well branched whole roots, which fact enabled us the past sason in securing a good growth in spite of the great drouth of 1902.

Our Peach Trees are all budded on seedlings from native pits and trees produced are not excelled in quality anywhere.

New Haven Nurseries, New Haven, Mo

Major Holsinger's Department

Missouri State Fair at Sedalia.—Well, the state fair is a thing of the past. A success? Yes. Sedalia is a nice city, the fair grounds nicely located, the show of both agriculture and horticulture was excellent. Corn 18 feet in height with ears 10 feet from the ground; pumpkins of 100 pounds weight, melons nearly as large, potatoes as fine as I ever saw. Everything in fact, was excellent. The fruit display was up to date, when the time of holding the fair is considered. Apples were smooth and of good size, but defective in color. Pears were the best I have yet seen at a show. Peaches were not much in evidence. There were some very fine Elbertas by Mr. J. W. Hitt of Koshkonong. The collections of fruit were by the counties of Pettis, Laclede and Platte. The premiums were in the order named. Mr. G. A. Atwood of the Practical Fruit Grower, published at Springfield, was superintendent of the horticultural department. We were hospitably received by him and at once drafted as the awarding committee on fruits. This gave us the opportunity to examine and determine their condition. Mr. Waters, who was of the committee, through illness was unable to assist. Our work in consequence was somewhat onerous, as care is always necessary where there is a single judge in making awards. We are glad to know there were no serious objections, and, with a single exception, all was serene.

One noticeable feature of the fair was the absence of the objectionable features so often found to allure the young. No saloons, no gambling devices were to be seen on the grounds. Not even pool selling was allowed. One party was driven out of the grounds for trying to sell intoxicants. The Missouri State Fair was the cleanest of its kind we ever attended. May it continue so.

Announcement.—We are sorry to announce that a large batch of matter, mostly answers to queries, was lost in the mail that should have appeared in the August number. A number of these answers were of interest at least to the inquirers. It is our purpose to treat all our correspondents fairly, answering every question asked either by personal letter or through the paper. Should you be disappointed in not getting the desired information you may be assured there has been other cause than delinquency on our part. As we always return the letters with our answers to the office, we have no data by which we can correct this misfortune. To all those expecting an answer, please write your wants, and we will try again.

Major Holsinger: Will you kindly say in your department in Western Fruit-Grower, what is the matter with this peach tree sample enclosed? It's a three-year seedling and broken out all over with enlarged places exuding gum. Is it dangerous to the other trees near it?—J. D. Schwimm Paxton, Ill.

Replying to the foregoing, I will say the exudation of gum is all upon the one side. From this I deduce that there was an injury, which I attribute to hail. The leaves and branch seem otherwise perfectly healthy. I would think it was caused by hail.

The August meeting of the Missouri Valley Horticultural Society at Parkville was the best meeting of the organization which I have ever attended. Over 200 people dined—and such a dinner! The papers were all good, and we hoped to be able to present all of them in full, but owing to lack of space can give only a summary of each. The Parkville friends deserve great credit for their arrangements for the meeting.

Dan Carpenter was on the program for a paper on "Comparison of Our Vineyards with Those on the Rhine." This paper was a treat. Mr. Carpenter said he did not wish to disappoint the members of the society, so he had used Marconi's wireless telegraph to secure the permission of Emperor William to inspect the vineyards in his kingdom, and accompanied by Santos Dumont in his flying machine he had made the trip. The first part of the paper was a humorous account of the imaginary trip, and then Mr. Carpenter told of how the vine was cultivated on the Rhine as early as the sixth and seventh centuries, although not until the Middle Ages was winemaking developed to its present standard. He told of the Steinberg estate of 510 acres, 60 acres of grapes and the remaining 450 acres maintained for the sole purpose of providing fertilizers (manures) for the vineyard. The annual product of this vineyard, which is inclosed in a high stone wall, is 14,000 to 20,000 gallons of wine, which sometimes sells as high as $5 a bottle.

In conclusion, Mr. Carpenter said: "Were we to draw a parallel between the American people and the German people and their processes we might arrive at a comparison of their vineyards. Let us follow that slow, steady, careful, painstaking German, as he removes every superfluous shoot and defective berry—waiting for, gathering and pressing only the over-ripe for the best product· racking off and patiently waiting ten to twenty years that the wine may fully develop its richness, aroma and bouquet before placing on the market a wine famous the world over. Then turn to the active, energetic, pushing, nervous, get-rich-quick American, as he rushes everything at railroad speed, gathering and pressing his grapes as soon as they are fully colored, racking, bottling and putting his product on the market in six months at 30 to 50 cents a bottle (as compared with $3 to $5 a bottle) or he may ship his grapes 1,000 miles and sell at 2½ cents a pound in his haste to realize on the product of his labor.

"Now, I leave you to make your own comparison, and hope the committee will not do anything like this again. 'Blessed are they who expect nothing, for they shall not be disappointed.'"

Secretary Goodman, who could not be present on account of marketing his peach crop in Southern Missouri, where he was shipping as high as three carloads a day, sent a most excellent paper on "Some Shade and Ornamental Shrubs and Trees." He told of the work which Western people have done in destroying trees, and now are seeking to make amends by planting to replace those destroyed. He commended the tree-planting societies which have been formed and the work which the government is doing to protect our forests.

For planting, he recommended getting good trees with good root systems, which should be planted with least possible exposure. He named Sugar Maple as first on list of shade trees, on account of its beauty and longevity. He said it would grow well if given good attention and manured occasionally. Next he named Sycamore Maple, followed by the Elm. Then white ash, linden, box elder, tulip tree, etc. For street planting in the cities, where trees die from smoke and soot, nothing is better than sycamore.

He recommended planting shrubs where the space is available. First in order of blossoming is Forsythia; next lilacs in many colors, Japan Quince, Deutzias, Syringa, Spirea in endless variety, Weigelia, Althea, Hydrangea Grandiflora Fringes, purple and white, and the Purple Berberry. For ornamental trees, catalpa, honey locust, chestnuts, and the double-flowered crab, plum, peach and cherry trees were recommended. Other trees with beautiful foliage, as cut-leafed birch, beech, etc., can be used to good advantage.

Mr. Goodman recommended planting trees and shrubs in groups, keeping a beautiful grass plot for contrast and to form the background to the picture. Without this an artistic effect will not be secured.

G. L. Holsinger sent a paper on "Cold Storage for the Preservation of Fruits and Vegetables." He said there has been a great deal of fruit lost in cold storage because of improper care, and that at times it would seem that fruits had better be sold at picking time than to risk the storage. Still, it is possible to succeed, where the storage plant is properly conducted. Assuming that apples have been properly packed and picked at the right time, with wormy or decayed fruit thrown out, the question "Where shall I store?" is one of importance. "My answer would be if there is a cold storage plant where you are satisfied the temperature will be kept uniform, store there. I believe it is better to store where temperature is constant, even if temperature is several degrees higher than you would prefer. If you are not satisfied temperature will be kept uniform, I believe to store in cellars and caves is preferable."

The speaker told of the process of

Made for Farmers

That's why it pleases them. Farmers who are remote from machine shops, etc., want an engine which will work right along, with no need of a machinist or repairs. The Weber Junior (2½ horse power) does this, and that is why it is the favorite gasoline engine for farm use from Maine to California.

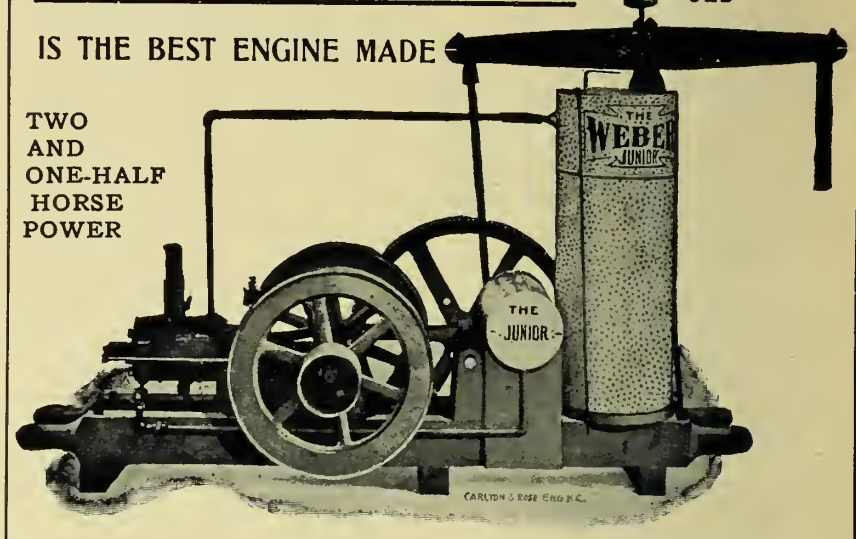
Fruit farmers need a good gasoline engine for pumping water, sawing wood, grinding feed, etc., and especially for operating spray pumps. The Weber Junior is used by many readers of the Western Fruit-Grower for just these purposes. It can be mounted on a wagon and will furnish power for spray pumps which will produce the fine mist so necessary to successful spraying. It is the cheapest power one can use.

THE WEBER JUNIOR

SIXTEEN YEARS OLD

IS THE BEST ENGINE MADE

TWO AND ONE-HALF HORSE POWER



Not only will the Weber Junior run on any farm without breakage, not needing an experienced engineer, but it is shipped from the factory crated ready to run, and can be set up by anyone. It is thoroughly tested before leaving the factory, and any defective parts will be replaced free for two years from date of purchase. Can you ask any better proposition?

Send for descriptive circulars, illustrated, which are free for the asking.

Weber Gas and Gasoline Engine Co.
Box 1114-F. KANSAS CITY, MO.

Tobacco Dust
FOR FRUIT TREES

Also Pure Bone Fertilizers, "Anchor Brand." Send for our free circulars.

The A. B. Mayer Mfg. Co., St. Louis, Mo.
Established 1863 1022 North Twelfth Street

500,000 TREES
FOR FALL AND SPRING PLANTING

Springfield (Nichols) Nurseries and Poultry Yards now offer to the planters a large stock of extra well grown stock of Apple, Peach, Pear, Cherry and Plum trees. Also small fruit plants and shade trees. We are headquarters for PAYNES LATE KEEPER and Ingram Apples. Have good stock of ELBERTA, CHAMPION, EMMA, SALWAY and general variety of peach. Prices and catalogues on application.

Correspondence solicited. Satisfaction guaranteed.

Barred Plymouth Rock breeding stock for sale from highest scoring pen in Mo., 186¾. Prices on application.

TIPPIN BROS., Proprietors, Nichols, Mo.

SPRAGUE CANNING MACHINERY COMPANY
SALES OFFICE:
802 MASONIC TEMPLE, CHICAGO, ILL.

Chattanooga Nurseries
SPECIALTIES

Peach, Apple, Pear, Cherry and Small Fruit Plants:
We are headquarters for one year and June Bud Peach. Including Elberta, Carman and all leading varieties. Before placing your order, write us, We will save you money.

D. W. HUNTER, Proprietor. CHATTANOOGA, TENN.

GENEVA NURSERIES
WHOLESALE ONLY.
A full line of Nursery Stock.
Nebraska-Grown Apple Seedlings
a specialty. Correspondence invited.
YOUNGERS & COMPANY
GENEVA, NEB.

St. Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand Typewriting Penmanship, Telegraphy and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. School in session throughout the year. Catalogue free. E. E. GARD, Proprietor.
St Joseph, Mo.

GOLD IN A NUTSHELL

New Book, all about Nuts.
Price, 10 cents.
AMERICAN PLANT & SEED CO.
NASHVILLE, TENN.

STRAWBERRY CULTURE By M. Crawford

The best of the knowledge gained in nearly 50 years' experience boiled down into 60 pages. A capital compendium of up-to-date practice. —AMERICAN GARDENING.
It will pay fruit-growers to send for this pamphlet.—FARMER'S FRUIT FARMER.
PRICE TEN CENTS.
M. CRAWFORD CO., Box 1004, Cuyahoga Falls, Ohio

AUSTIN'S DEWBERRY

The most profitable of all dewberries. Original propagato rand introducer. Jordan Blackberry and New Cardinal Raspberry. Keep the money coming. Write for descriptive circular and prices.
J. W. AUSTIN, PILOT POINT, TEXAS

Apple Barrel Presses

We are agents for the Hynson Barrel Press, and have a full supply at all times. Write us.
Sandusky & Co., St. Joseph, Missouri

LACON NURSERY AND FRUIT FARM
APPLE ROOT GRAFTS

Best and Cheapest. Whole and Piece Root, 100 varieties; also Pear, Plum and Cherry grafts. Get our prices now. APPLE TREES, 1 and 2 year sizes, 2 to 3 ft. and larger, good assortment. CHERRY TREES, mainly Early Richmond, 2 to 3 ft. and 3 to 4 ft. Cheap for early fall shipment.
H. E. ROWLEY, Lacon, Illinois.

100,000 Apple Trees (2 and 3 Yrs.)
50,000 Concord Grapes (1 and 2 Yrs.)

Besides a large and complete stock of all kinds of fruits, berries, etc. Send me your list of wants for cheap prices.
Hawkeye Nurseries
W. H. KAUFFMAN, Prop., Stratford, Iowa.

VINCENNES NURSERIES

W. C. REED, Prop., Vincennes, Ind.
We offer the following carlots for fall, 1902: Apple, 2 and 3 years; Cherry, 1 and 2 years; Peach, 1 year. Also good assortment of Standard and Dwarf Pear, Plum, Snyder and Early Harvest B. B. R. C. Plants, Carolina Poplar, Elm, Soft and Cut Leaved Maples, Shrubs, etc.

THE TOPPING PORTABLE EVAPORATOR.
Four sizes made.
Capacity of any size. Sufficient to pay for itself in from 10 to 15 days.
Slicer, Corer, Apple, Peach and Potato Parers. Dried Fruit Presses.
Send for circular.
M. Torrey, Marion, N.Y.

WHITMAN'S PATENT AMERICUS

The Best Cider and Wine Mill made. Will make 20 per cent. more cider than any other. Geared outside. **Perfectly Adjustable.** Prices as low as any first-class mill. Mfrs. of Hay Presses, Horse Powers, Corn Shellers, Feed Cutters, Feed Mills, etc. Send for circulars.
3 SIZES
WHITMAN AGR'L CO. St. Louis, Mo.

Do you want to gather your
APPLES AND PEARS
at 1-3 to 1-2 the usual cost? Then write to E. G. Mendenhall, Kinmundy, Ill., for circulars regarding the
California Bottomless Bags
Patented.

cold storage plants, and said only by constant care can temperature be kept at a uniform point. The varieties of apples to be stored must of course receive careful attention, as with the best of care some varieties do not store well. Ben Davis, Gano, Willow Twig, Winesap, Romanite, Rome Beauty do well in storage, while York Imperial and Smith Cider generally scald badly. Few summer apples will keep for a long period. Huntsman do not usually keep well beyond Thanksgiving, nor do Bellflowers; Jonathan can be kept until March, and Maiden Blush until October or November. These dates vary, of course, but they are approximately correct. I believe summer apples should first be put in a cooling room of say 50 degrees, and allowed to cool, then transferred to a temperature of 32 or 33 degrees.

"Apples seem to do better in barrels while in storage than in any other package. Even if one wishes to market in boxes, the fruit can best be stored in barrels and then repacked. Pears will keep in cold storage about the same as apples, but as most of the pears grown here are Duchess and Keiffer, it is not advisable to store them, as the best market comes in the fall."

Prof. Howard McAfee read a paper on "Disposition of Horticultural Products," which we reproduce herewith:

"The subject assigned me for today, is the other side of our horticultural effort. Much of our discussion centers around the problems of producing crops, best varieties, soil conditions, insect pests, etc. This subject takes us to the other end of the season, when we must dispose of what we have saved from the numerous snares and pitfalls that beset our growing crops. I have in my home, a three-year-old curly-headed interrogation point. Whenever she sees anything unusual in my hand, I am always greeted with the question, What are you going to do with it? That is the question we are greeted with today. What shall we do with it? When crops are small and prices good, this question troubles us very little, but when crops are abundant or quality is below what we are willing to put upon the market under our own private brands, then we begin to seek other outlets.

"But whether the crops are abundant or meager, whether the prices are high or low, there is one outlet which I believe brings larger returns than any other, and which I would put first in the line of profitable disposition of our products. That is the home uses. Free use in our homes of the fruit in its green state, and an abundant supply for the winter and spring should be allowed to consume as much of our crops and of the best of them, as possible. I have been recently told of an interview with a child in the family of one of our wealthy fruit growers whose crops of a certain delicious fruit had been abundant during the season. Her interrogator made the remark that she supposed they had an abundance of the fruit for their own use for the winter. The little one's reply was, 'Oh, no! You know there were not many culls this year.' I am sure you feel the pity of it. While I do not advocate the use at home only of perfect, merchantable fruit, I do insist that we should use something more than the culls for our own home folks.

"There are men in every line of production who can afford to produce in the interest of science, or who find ample compensation for outlay of time and money in propagating some new variety or advancing the interest of horticultural science; but for most of us, success will be expressed in dollars and cents. Hence, the disposition that we seek is the disposition that will bring us largest returns in cash or its equivalent. Some of these methods of disposition may be listed as follows: Canning, preserving and pickling, evaporating, reduction to cider, vinegar, brandy, wine, etc., cold storage or home storage for higher prices. It might not be out of the way just here, for me to forestall my conclusion by the statement that I question the wisdom of any of these methods; and so far as my observation and judgment goes, would say the market open at the time the fruit is ready for market, is the best outlet and in the long run will prove the most remunerative. This does not mean, of course, that we must dump our products on the market nearest to us. I know not what the experience of our Gashland friends has been in seeking markets at a distance, but have no doubt they have found it satisfactory as I know many similar associations have.

"I have had some experience in canning. There is undoubtedly money in canning apples, grapes, peaches, berries, etc., but I doubt the expediency of the fruit raiser, under ordinary conditions, conducting such a plant at a profit. Our good president, as you all know, is an earnest advocate of the reduction of the duty on tin so that cheaper packages may be provided, but it is an open question whether this would result in better returns to the horticulturists, or lower prices to the consumers. The same is true of pickling and preserving. Mr. Heinz, the great advertiser and '57 varieties' man, is quoted as saying that he can at any one of his stations pay more for the products that he uses, than any small factory can afford. I have no doubt this is true and since the small factory must compete with him and others in the selling market, and would have a larger per cent of expense in marketing, it would seem scarcely likely to be profitable to undertake such disposition.

"As to evaporation and vinegar making, I will venture the assertion that there is not a man here who has raised apples to any extent, but has had some experience along these lines. While we may be able to make it profitable in a small way, I doubt if any of us have found it profitable when we have undertaken it on a large scale. Judge Wellhouse in a recent address before the Kansas Horticultural Society, gave his experience. He reports that in 1881, the second year their large orchard bore, they put in a cider plant. They thought they were making money but he says at the end of the three years, it began to dawn on them that they were acquiring experience only, and that converting apples into cider with the expectation of making money out of it, was an uncertain road to travel. The next year they tried an evaporator. This is the way he reports it: 'In about two years we had more experience. At the end of two years when our books were balanced, we found that the manufactured products only brought us about what the culls would have sold for in the market; thus losing our labor, wear and tear of machinery, etc. Since this experience we have had very decided opinions as to what ought to be done with our culls, and, as they were picked, we have sold them to whomsoever would give us the most cash.' Those evaporators are still standing and free use of them is given buyers of culls.

Our members connected with the Olden Fruit Farm can best tell of their experience with manufacturing of surplus products. I understand they have been compelled to lease their still house to the trust and sell their surplus products, of course, to manufacturers.

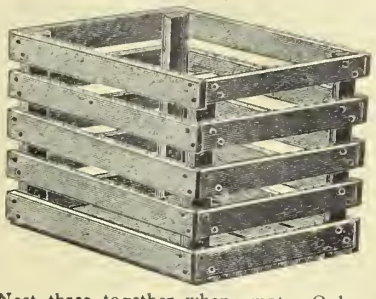
"Storage, either at home or in some market center in cold storage, may sometimes prove profitable, but has many times proved disastrous. In a recent paper before the Iowa Horticultural Society, Professor Price expressed the opinion that there must be at least one dollar a barrel profit between the November and March prices to warrant cold storage. He quoted Professor Corbett of the West Virginia station, who has made an extensive study of the subject, as saying fifty cents per barrel increase in price would make storage on the farm profitable. This storage contemplates a storage house with ice chamber for refrigeration, but this goes into the realm of speculation and it would never pay to go to the cost of erecting storage places unless we were sure of a crop of 1,000 barrels or more per year.

"I hope we may have full discussion of this subject. My own conclusion is that our horticultural products would be most advantageously and profitably used when we have first provided liberally for our own households, and disposed of the balance to the highest bidder at the time the crop is ready for market."

450,000 TREES
200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

FENCE! STRONGEST MADE. Bull-strong. Chicken-tight. Sold to the Farmer at Wholesale Prices. Fully Warranted. Catalog Free.
COILED SPRING FENCE CO., Box 125 Winchester, Indiana, U. S. A.

VENTILATED BUSHEL CRATES



Nest three together when empty. Only perfect crate on the market. Price, ready to put together, $7 per hundred. Write for full particulars to
The Geneva Cooperage Co., Geneva, Ohio

200 AM. ARBOR VITAE FOUR YEARS OLD $2.00

At the above prices we will ship the above 200 lot prepaid to any office in the U. S. Order as many lots as you want, but not less than 1 lot of 200. Each customer will be sent free a little Illustrated Pamphlet of Planting Instructions, giving in detail such proper methods for the successful planting and care of Evergreen as are practiced in our own nursery. Failure is out of the question if instructions are carefully followed. The American Arbor Vitae is undeniably the best all-round Evergreen for hedges, windbreaks, and screens. May be sheared to suit, tall or low, broad or narrow. ORDER NOW FOR FALL.
Evergreen and Shade trees by the carload. } EVERGREEN NURSERY CO. Sturgeon Bay, Wisconsin.

To the Public

The best and safest life insurance policy you can take out is a Sudduth Pear orchard. No assessment to pay each month, your policy is paid back to you many times during your lifetime and again after your death to your family.
The propagators, Augustine & Co., Normal, Illinois, have issued a booklet on this marvel of horticulture which they will send free for the asking. They also wish to state that their catalogue of general nursery stock for 1902 is just from the printers and is free to all who desire it.
We give excellent inducements to agents to handle the Pear. Write us for particulars.
Augustine & Co., - Normal, Ill.

Money Rolls to Agents

that sell nursery stock from the famous GREELEY COLORADO NURSERIES, whose stock is better adapted to all localities than any others. Agents wanted in every county. Write at once for terms and territory, giving reference.

200,000 Asparagus Roots

two-years-old. Price very low. Also Rhubarb, Horse Radish, Currant, Gooseberry and Quince cuttings. Usual stock of "EVERYTHING IN SMALL FRUIT PLANTS," Strawberries, Raspberries, Blackberries, Dewberries, Currants, Gooseberries and Grape Vines. Fine stock.
W. N. SCARFF, New Carlisle, Ohio.

GREATLY REDUCED RATES VIA Wabash Railroad

HALF RATES Round Trip, (plus $2.)
To Sandusky, Columbus, Toledo, Cincinnati, Indianapolis, Louisville and many points in Indiana, Ohio and Kentucky. Tickets sold Sept. 2nd, 9th, 16th, 23rd.

LESS Than half rates
to Washington, D. C., and return. Tickets sold October 2nd, 3rd, 4th and 5th.

HALF RATES Round Trip.
To Buffalo, Toronto, Niagara Falls, Pittsburg, Detroit, Cleveland, Columbus and many points in Michigan, Indiana, Ohio, Pennsylvania, West Virginia and Kentucky. Tickets sold Oct. 2nd, 3rd, 4th, 5th.

HALF RATES.
Boston, Mass., and return sold Oct. 6th, 7th, 8th, 9th and 10th.
Long Limits and stopovers allowed at Niagara Falls and Detroit on above tickets.
Only one business day en route Kansas City to New York and Boston via WABASH train No. 8; leave Kansas City 6:15 p. m. daily arrive New York 7:45 a. m. and Boston 10:30 a. m., second morning.
For rates and all information call at Wabash New City Office, 1601 Farnam St., or write Harry E. Moores, Genl. Agt. Pass. Department, Omaha, Neb.

Canning Machines
SPECIALLY SUITED FOR HOME CANNERS.
Send for circular describing small and large canning outfits. Hundreds of them in use. Write at once to
M. FOERG, - Meridian, Miss

Z. K. Jewett & Co., Nurserymen
SPARTA, WIS.
Sphagnum moss in car lots a specialty, both in wired and burlap bales. Quality the best.

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part if the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

FOR SALE—Orchard and Stock Farm, 160 acres; 1½ miles from Leasburg; 80 miles southwest of St. Louis on Frisco Ry.; 40 acres cleared; living spring at house; fine commercial orchard of 1,000 apple trees in bearing, besides other fruits; land lays fine for all kinds of farming; good timber; possession at once, with 1 cow, 2 heifers and 2 steers and feed; price $2,000. Terms, $300 to $500 cash, balance on time. Address O. C. PROVOST, Third and Locust Streets, St. Louis, Mo.

FOR SALE—20-acre fruit nursery market garden farm, with greenhouse and good 9-room residence and all necessary out buildings; in a town of 3,000. For further particulars, address box 442, Rockville, Ind.

FOR SALE—1,000 acres Georgia peach land; terms easy. T. J. ANDERSON, Temple, Ga.

FOR SALE—Ozark fruit farm of 80 acres. One and one-half miles from good railroad town of two thousand population. Sixty acres in cultivation, well fenced with board and wire. Three thousand apple and peach trees, half of which beginning to bear. Also pears, plums, cherries and small fruits.

Three never failing springs, and good well at house.

Six-room modern cottage, stable, two poultry houses, yards, etc. Other business requires all our attention. Address Mountain Grove Nurseries, Mountain Grove, Mo.

FOR SALE—15 acres orchard, nursery and garden land one mile from town of 3,000 inhabitants. Ten acres young and bearing trees, mostly winter apples. Great variety of fruit, nut and shade trees, berries, etc. 10,000 trees and plants in stock. Never failing water at house and barn. Six-room house, barn and cow house. Grafting house with cellar, wood house, horse, wagon, harness and implements. Good chance for nurseryman or gardener; $3,500. Riverside Nursery, box 23, Grant's Pass, Oregon.

A fine farm of 65 acres, with good 6-room house and large new barn and other improvements. Good soil; seven acres 12-year-old Ben Davis apples, in full bearing; about 500 4-year-old trees and 500 two years set. This farm is offered at a bargain for $3,300.

A fine farm of 200 acres with good improvements for $36 per acre. Write quick to Dr. G. R. White, Greenville, Ill.

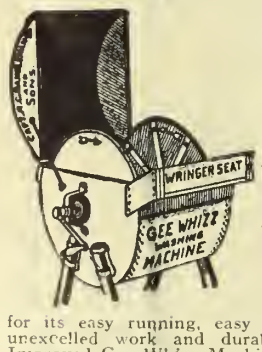
FRUIT FARM FOR RENT—22 acres, 600 fruit trees, about 100 cherry and pear trees in bearing, balance four years old; house of three rooms, barn, cellar, cistern, well; 2 miles from city of 5,000; rent, $100 per year; 10 acres in cultivation, balance pasture. E. R. Smith, Fairfield, Iowa.

Good Government land under co-operative irrigation. For particulars address COLORADO CO-OPERATIVE COMPANY, Pinon, Montrose Co., Colorado.

I have a farm of 60 acres, 40 in 2-year-old orchard; good commercial variety; good 4-room house, barn and out buildings, 2 good wells. A splendid fruit farm. Within 3½ miles of depot, in good neighborhood. Land around it sells for from $40 to $60 per acre. I will sell it for $40; $1,000 down, balance 5 or 10 years at 5 per cent interest. A splendid chance for some old couple to make a home and some money easy. If I can't sell will give the right party a one-fourth interest in orchard for taking care of it. Box 62, Baylis, Ill.

FOR SALE OR TRADE—Gasoline engine, with pumping jack. For particulars, write to W. W. Scofield, Clay Center, Kan.

WANTED—A single man to work on fruit farm and do general work; steady work the year round; for particulars, address William Booth, Winchester, Kansas.



Gee Whizz Washer

(Double Reflex.)

Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

Capt. Randleman & Sons

1415-1417 E. 18th St. Des Moines, Ia.

NO MORE CABBAGE WORMS

And no more chicken lice. Millions of dollars are lost because of the work of these insects every year. I have a sure cure for both, and it is cheap. Each recipe 50c. Address JOHN KLENKE, 412 West Homestead, Pa.

These Are Apple Buyers

For the benefit of our readers we present a list of the members of the National Apple Shippers' Association, as follows:

Altschul Brothers & Co. Lima, O.
Anderson, W. O., Topeka, Kans.
Anderton Fruit Co., Dayton, O.
Armacost Riley & Co., Cincinnati, O.
Armour & Co., Chicago, Ill.
Armour Packing Co., Kansas City, Mo.
Bahrenburg, J. H., Bro., & Co., New York City.
Bailey, H. J., Albion, N. Y.
Baker, M. & Co., Chicago, Ill.
Ballston Refg. S. Co., Ballston Spa, N. Y.
Barnett Brothers, Chicago, Ill.
Baxter Brothers Co., Mason City, Ia.
Bean, Coward & Chaddock, Buffalo, N. Y.
Beatty & Haberman, Pittsburg, Pa.
Beckwith, D. S., Albion, N. Y.
Beckley, H. C. & Co., Cincinnati, O.
Bell, Charles C., Boonville, Mo.
Belviy, F., New Albany, Ind.
Bender, Streibig & Co., Cincinnati, O.
Bennett & Hall, New York City.
Benton, W. J. & Co., Cleveland, O.
Big Four Fruit Co., Marion, Ind.
Blodget, W. H., Co., Boston, Mass.
Geo. Bosche, St. Louis, Mo.
Bowen, E. H. & Co., Louisville, Ky.
Bradley, L. A., Somerset, N. Y.
Brennisen, F. & Son, Buffalo, N. Y.
Britton, W. N. & Co., Rochester, N. Y.
Bryant, L. R., Princeton, Ill.
Burkley & Co., Pittsburg, Pa.
Burns, Jno. C., La Crosse, Wis.
Butterworth, G. W., Philadelphia, Pa.
Butts, O. W., Omaha, Neb.
Cannon, I. J. & Co., Cincinnati, O.
Clymonts, T. S., Cleveland, O.
Conant, N. B., Littleton, Mass.
Coyne Bros., Chicago, Ill.
B. C. Crossman & Co., Sioux Falls, S. D.
Crutchfield & Woolfolk, Pittsburg, Pa.
Cummings, F. D. & Bro., Portland, Me.
Cummings, Maurice, Portland, Me.
Curren, J., & Co., Cincinnati, O.
Davidson, C. M. & Co., Cincinnati, O.
Davison, G. W. & Co., New Orleans, La.
Dawson Commission Co., Toronto, Ont.
Dempsey, Harry, Rednerville, Ont.
Denman, M., Chicago, Ill.
Denunzio Fruit Co., Louisville, Ky.
Detweiler, A. B. & Son, Philadelphia, Pa.
Dilman Brothers, Geneva, N. Y.
Dixon Brothers, Hamilton, Ont.
Earl Brothers, Chicago, Ill.
Ellice, John & Co., New York City.
C. C. Emerson & Co., St. Paul, Minn.
Emerson, Marlow & Co., Chicago, Ill.
Entrikin Fruit Co., Columbiana, O.
Ermeling, L. R. & Co., Chicago, Ill.
Erie Preserving Co., Buffalo, N. Y.
Evans, T. H. & Co., Baltimore, Md.
Evans & Turner, Columbus, O.
Evansville Ice & C. S. Co., Evansville, Ind.
Farwell & Dickson, Harvard, Mass.
Fee, J. J., St. Catherines, Ont.
Ferguson, A. R., Lockport, N. Y.
Ferguson, F. H., Appleton, N. Y.
Ferrin Brothers Co., Rochester, N. Y.
Ferris, F. L., Albion, N. Y.
S. T. Fish & Co., Chicago, Ill.
The W. M. Fisher & Sons, Co., Columbus, O.
Forster, Charles, New York City.
Fowler, G. H., Burford, Ont.
Freeman, F. R., Middleport, N. Y.
Funck Brothers, Cincinnati, O.
Gail, I. H., Buffalo, N. Y.
Gerrard, S. A. & Co., Cincinnati, O.
Gilkeson, A. H., Warrensburg, Mo.
Glas, Bloom & Co., Cincinnati, O.
Gleason, P., Le Roy, N. Y.
Godfrey, E. B. Sons' Co., Milwaukee, Wis.
Graham, R. J., Belleville, Ont.
Grinnell, Collins & Co., Minneapolis, Minn.
Grossenbach, A. & Co., Milwaukee, Wis.
Hagaman, T. C., Oakville, Ont.
Haley & Co., Sioux City, Ia.
Hall, A. J., Rochester, N. H.
Hammer, J. B. & Co., Cincinnati, O.
Hanley Brothers, Chicago, Ill.
Hannibal Produce Co., Hannibal, Mo.
Hart, Wm. H., Poughkeepsie, N. Y.
Hassler Bros., Louisiana, Mo.
Haueisen Brothers, St. Louis, Mo.
Hayes, Dennis, Allegheny City, Pa.
Hayes, Blair & Co., Cleveland, O.
Hendrickson, J. D., Philadelphia, Pa.
C. W. Hickox, Batavia, N. Y.
Hirt, P. Jr., Detroit, Mich.
Hoag, C. A., Lockport, N. Y.
Hornung, George, Buffalo, N. Y.
Hosbury, R., Toledo, O.
Howes, A. C., Albion, N. Y.
Howes & Buck Co., Battle Creek, Mich.
Huston & DeSellem, Port Homer, O.
Huston, J., Lockport, N. Y.
Jackson, J. J., Middleport, N. Y.
James, Eben, Toronto, Canada.
Johnson, F. C., Milwaukee, Ill.
Johnson, James E., Simcoe, Ont.
Jones-Pope Produce Co., St. Louis, Mo.
Kahlert, Chas. H. Co., Louisville, Ky.
Keach, J. J., Indianapolis, Ind.
Keller, W. R., Platte City, Mo.
Kelly Company, The, Cleveland, O.
Kiefaber Co., The, Dayton, O.
J. H. Killough & Co., New York City.
Kimball, Austin & Co., New York City.
King, R. J., Waterford, Mich.
King & McCracker, Danville, Ill.
Kirby, W. H., Quincy, Mich.
A. E. Kline, New York City.
Knight, David, Sawyer, Mich.
Knowles, A. J., Lockport, N. Y.
Lamb, J. J., La Crosse, Wis.
Lane, F. D., Fort Worth, Tex.
Lang, R. J., Exeter, Ont.
Lang & Becker, St. Louis, Mo.
Lawrence, Chester R., Boston, Mass.
Lawrence & Co., Boston, Mass.
Lichtenberg & Sons, Detroit, Mich.
Liebhardt, G. G., Commission Co., Denver, Col.
Loomis, F. P. & Co., New York City.
Love, C. F. & Co., Chicago, Ill.
Lowe Brothers & Co., Fitchburg, Mass.
Mackey & Williams, Buffalo, N. Y.
Malvern Cold Storage Co., Malvern, Ia.
Martin, D. & Co., Cleveland, O.
Martin-Woods Co., The, Davenport, Ia.
Mayer, Mitchell & Co., Louisville, Ky.
Maynard & Child, Boston, Mass.
McClay, A. J. & Co., Chicago, Ill.
J. M. McCosch & Co., Huntington, W. Va.
McHattie Brothers, Beaver Falls, Pa.
McWilliams & Everist, Toronto, Ont.
Mead, A. & O. W. & Co., Boston, Mass.
Middlesworth Com. Co., Denver, Col.
Miller & Davis Co., Chicago, Ill.
Miller & Tensdale Co., St. Louis, Mo.
Millett, C. W., Port Huron, Mich.
Montgomery, Wm., Ft. Worth, Tex.
Morgan, Jno. C., Traverse City, Mich.
Moseley Brothers, Grand Rapids, Mich.
Mott, Jr., S. R., Rochester, N. Y.
Myers, Weil & Deutsch, Cleveland, O.
Nellis, F. E. & Co., Chicago, Ill.
Nesbitt, Samuel, Brighton, Ont.
Newhall, F. & Sons, Chicago, Ill.
Nichols, E. R. & Co., Chicago, Ill.
Nix, John & Co., New York City.
Nokes, The C. W. Co., Cleveland, O.
Noyes, W. W. & C. R., Boston, Mass.
Olivit Brothers, New York City.
Osborne Co., W. E., Pittsburg, Pa.
Otis, Alfred W., Boston, Mass.
Mark Owen & Co., Chicago, Ill.
Palmer & Co., Sioux City, Ia.
Patch & Roberts, Boston, Mass.
Payne, G. W., So. Greece, N. Y.
Perkert, L. F., Traverse City, Mich.
Peterson, M. H. & Co., Toronto, Ont.
Phillips Brothers, Castile, N. Y.
Pierce, A. J. W. Co., Milwaukee, Wis.
Pierce, O. R., Hudson, Mich.
Pitts, J. J. & Co., Cleveland, O.
Pomeroy, F. J., Milwaukee, Wis.
Porter Brothers Co., Minneapolis, Minn.
Potter & Williams, Buffalo, N. Y.
Presley, B. & Co., St. Paul, Minn.
Price, I. N. & Co., Cincinnati, O.
Priday, H. C., Euclid, O.
Prisch, D. L., Middleport, N. Y.
Pritchard, Fred., Liverpool, Eng.
Randall, C. L., Oxford, Mich.
Ransom, W. H. H., Ransomville, N. Y.
Rapp, C. N. & Co., Grand Rapids, Mich.
Rea, J. L., Van Buren, Ark.
Reitz, P. J. & Co., Cincinnati, O.
Rich, Josiah, New York City.
Roberts & Andrews, Philadelphia, Pa.
Rodenburg, H. L., Leavenworth, Kans.
Rogerson, F. & C. S. Co., Le Roy, N. Y.
Roper, S. I., San Jose, Cal.
Rothwell & Co., E. Palestine, O.
Rush, Alfred, Detroit, Mich.
Ryan & Richardson, Leavenworth, Kan.
Sandau, E. J. & Co., Cincinnati, O.
Sears, P. C., Chicago, Ill.
Seldon, Thomas, Ingersoll, Ont.
Shafer, Fruit & C. S. Co., Gasport, N. Y.
Shaw & Richmond, St. Louis, Mo.
Simons, Shuttleworth & Co., Liverpool, Eng.
Shuttleworth, J. M., Brantford, Ont.
Smith, W. C., Weston, Mich.
Smith, J. C., Burlington, Ont.
Snetsinger, M., Thornbury, Ont.
Snow, B. W., Chicago, Ill.
Snow & Co., Boston, Mass.
Snyder & Blankford Co., Baltimore, Md.
Stacy, E. P. & Sons, Minneapolis, Minn.
Stafford Co., R., Milwaukee, Wis.
Stanley Co., H. P. R., Chicago, Ill.
Strauss & Joseph, Cleveland, O.
Sutton Bros., Columbus, O.
Swigert, J. G., Appleton, N. Y.
Syerup & Co., Indianapolis, Ind.
Thomas & Co., Peoria, Ill.
Thorn, J. W. & Co., Philadelphia, Pa.
Thorn, A. L. Co., Philadelphia, Pa.
Tullis & Phelps, Canton, O.
Twin City Ice & Storage Co., Champaign, Ill.
Upton, E. M. & Co., Hilton, N. Y.
Wagner, G. M. H. & Sons, Chicago, Ill.
Walker Co., M. M., Dubuque, Ia.
Walter, Harrison, Clarkston, Mich.
Watson Fruit Co., Chicago, Ill.
Watson, Thos. A. & Co., New York City.
Wayne & Low, Chicago, Ill.
Weager, I. B., Farmer, N. Y.
Weaver, C. H. & Co., Chicago, Ill.
Webling, Walter, Boston, Mass.
Wegeforth, T. C. H. & Co., Chicago, Ill.
Weil, S. & M., Cincinnati, O.
Weil, Brockman & Co., Cincinnati, O.
J. F. Whiteside & Bro., Louisville, Ky.
Whitney, Harry F., Boston, Mass.
WWignall, C. G. & Co., Streator, Ill.
Wilbert, Frank & Bro., Pittsburg, Pa.
Wiley, D. O. & Co., Detroit, Mich.
Williamson Produce Co., Quincy, Ill.
Wolters, C. & Co., Newark, N. J.
H. Woods, Chicago, Ill.
Wright, J. S. & Son, Philadelphia, Pa.
Wussow, J. H. & Co., Milwaukee, Wis.
York & Whitney, Boston, Mass.
Yuder & Van Sickle, Columbiana, O.

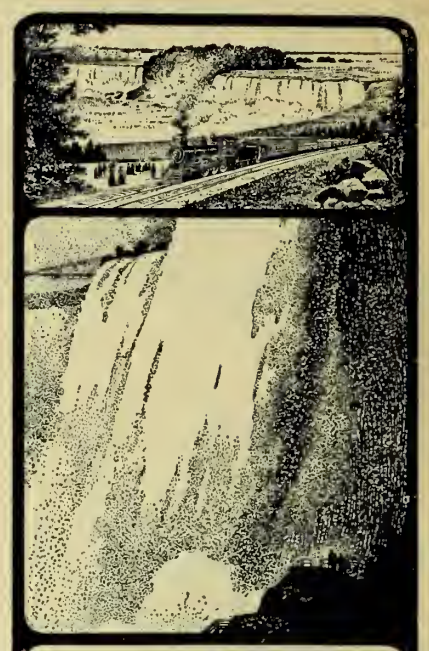
Another Ben Davis Story.

Captain Joseph W. Starr, of Steele City, Neb., recently called on the Western Fruit-Grower, and gave us a story of the origin of the Ben Davis apple. Mr. Starr says that in the summer of 1857 John Conley, of Boston, Wayne County, Ind., fruited a seedling apple of remarkably fine appearance. It was such a good looking apple that Mr. Conley decided to exhibit at the county fair. At the appointed time he took his fruit to the fair, the seedling still not having a name. Among those who inspected the fruit was one Benjamin Davis, editor of the county paper, who was a popular fellow whom everybody called "Ben Davis." This gentleman pronounced the apple the handsomest fruit he had ever seen, and inquired name of the variety. Mr. Conley said it was an unamed seedling, whereupon Mr. Davis said, "Well, that apple is good enough to bear my name; you should name it for me." Mr. Conley accepted the suggestion, and the variety was then and there given the name, "Ben Davis."

Captain Starr says there are old residents of Wayne County, Indiana, who will vouch for the truth of this statement. We publish it as another account of the naming of this variety which has made more money for apple growers than any other variety ever introduced.

This season there are practically but two varieties of pears. The Sudduth, which has not blighted and others which have.

Hot days followed by cool nights will breed malaria in the body that is bilious or costive. Prickly Ash Bitters is very valuable at this time for keeping the stomach, liver and bowels well regulated.



Michigan Central

"The Niagara Falls Route"

FOUR FAST TRAINS

Daily in both directions between Chicago and Detroit and Buffalo, New York, Boston and Eastern points with finest through Sleeping, Dining and Buffet Library Cars. All day trains stop five minutes at Falls View, directly overlooking the great cataract.

Send 6 cents postage for NIAGARA FALLS ILLUSTRATED.

O. W. RUGGLES, G. P. & T. Agt., CHICAGO, ILL.

Platt's Commercial College

Ballinger Bldg., 7th and Edmond
ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

SANDUSKY & Co.

GENERAL COMMISSION

Wholesale Fruits and Produce

116 S. Third Street, and 115 Market Square, ST. JOSEPH, MO.

BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.

Established 1884.

1,000,000 Peach Trees

Tennessee Wholesale Nurseries, Winchester, Tenn.

Exclusive growers of peach trees. June buds a specialty. No agents traveling, but sell direct to planter at wholesale prices. Absolutely free from all diseases and true to name. Write us for catalogue and prices before placing your order elsewhere. We guarantee our stock to be true to name. Largest Peach Nursery in the world.

J. C. Hale, Propr., Winchester, Tenn.

TREES BY THE MILLION

APPLE, PEAR AND FOREST TREE SEEDLINGS especially for nurserymen. Complete general nursery stock for everyone. Never before have our plantings been so heavy, and our stock will be fine. It will pay you to get our prices. GAGE COUNTY NURSERIES. J. A. Gage, Proprietor, Beatrice, Neb.

WE HAVE A **Surplus of Apple Trees**

4 to 6 feet whips and 4 to 6 feet branched; also cherry trees, grape vines, in fact a general line of nursery stock at live and let live prices. Write us. We also have a surplus of peach seed.

Southern Nursery Co.
WINCHESTER, TENN.

Agents Wanted Stock. We pay To sell Nursery 40 per cent to good competent men. HART PIONEER NURSERIES, Ft. Scott, Kansas.

Mention Western Fruit-Grower when you answer advertisements.

Poultry Department

Little Things—There are numberless and trivial matters contingent upon the prosperous and successful maturing of good poultry that might be referred to, and never too urgently mentioned—for the consideration of those who wish to breed birds well and profitably. And those noted in brief below are some of them:

Pure water for their drink and this on every day in the year i s a little thing by itself. Yet the neglect to supply this need regularly and permanently at all seasons will be found a serious impediment to the welfare of the stock by the watchful and observant poultry man.

Lice are very little things, but if the breeder neglects to keep his stock exempt from the assaults of these insidious enemies to their comfort he can never grow them to advantage and he can never keep his birds in health when these parasites are among them.

Thorough ventilation, be the weather cold or warm, is considered by the careless poultryman a trivial matter. But no provision is more necessary to the well being of our domestic birds than pure, fresh air and plenty of it at all seasons of the year. And this should never be overlooked.

Dry earth or gravel is a little thing to provide for your birds and many a beginner does not see why a clean board floor is not a better one upon which to confine his birds, year in and year out. They so often find pieces of grit in this gravel or coarse sand that suits them better than they find in the grit box. Without suitable grit they never thrive.

Green food in some shape is a little thing among the rest. Yet if we deprive our birds of this desiratum they will neither thrive or breed to advantage. They must have green food to keep them in a healthy condition. And if they have no range on which they may forage for it themselves it must be furnished artificially or they will soon show you how requisite it is to their thrift.

Feeding young chicks is deemed by most people a very little thing to do. Well, so it is. But feeding these tender youngsters properly is not as easy a matter as most people have an idea. They may very easily be killed by the too common use of raw corn meal mixed with cold water. When your little ones begin to leave you for another land by the score, think over your bill of fare, and see if you are feeding by directions.

A fowl's egg is a little thing. But if the hens who are disposed to lay them for us so generously are not rightly provided with the needed ingredients of varied food and so housed and protected as to keep them warm and comfortable in bad weather they will soon cease to lay, and we miss the supply. A well kept hen of any of the improved breeds will give us a generous supply of this fruit in the course of twelve months. A starved or neglected unsheltered bird posseses neither the power to lay eggs, nor the material for them.

The insects causing scaly legs are very little things. As they come not singly, but by the thousand, however, they are a power for mischief and should be annihilated whenever it is found that they have established a colony on the shanks of your birds. A few applications of kerosene oil will rid the shanks of them.

Roup is a little thing, so small at first that half of our poultry men pay but little attention to it. Yet eventually this when uncared for will cause the destruction of more good fowls than any other one cause. In its various phases, roup is the curse of the poultry yard, and too much care can not be exercised by poultrymen to prevent its presence.

The dust bath is a little thing, but deprive your birds of this simple luxury, however, and they will soon become covered with lice. Their plumage grows rough and their general condition is unhealthy. Give them a box of road dust with some sulphur sprinkled in it to roll themselves in daily and their general appearance, activity and thrift will pay you for your attention to their wants in this small particular. Many other little things we could mention that go to make up the sum of items necessary to the wellfare of your birds.

Feed Vegetables with Judgment—Green food of some kind is a desideratum be it observed. Without this we have never found in our experience that good, well developed birds could be raised, and we therefore remind our readers at this season (if your fowls are yarded) of the absolute importance of this provision. Knowing how acceptable green grass is to poultry, we purchase a good quality of clover hay for this purpose during the winter months. Do not allow them too much green feed. No person can make his whole diet on cabbage and be vigorous. Keep the machinery of digestion in perfect running order. Not too much oil or too much grit on the bearings, as the machinist would say.

We all feel the better for an apple occasionally, but not all apples, if you please, on our plate. Give your birds those potato parings, small cabbage heads, apple parings, turnips—in fact, anything for a change. The cost is small and the gain great in many ways. The principal involved in the saying that "What is worth having is worth asking for," seems to work well when applied to our feathered pets obtaining their living.

Practical Pointers.

One hour each day devoted to your "biddies" will pay you better than any other hour spent on the farm.

Winter layers depend upon early pullets, early pullets depend upon early setters and early setters upon winter layers.

Dry bone has but little value as an egg producer. It is not entirely valueless, but will not pay if you have to purchase it.

Never handle eggs for hatching with grease of any kind on your hands. Be careful and never shake them and disturb a hen and her eggs as little as possible.

Do not send the other man eggs that you would not use yourself. Eggs you do not consider good enough to set yourself are not fit to send, except to your grocery man.

With poultrymen the barred rocks and white Wyandottes are favorites for boilers. The chicks are thrifty and hardy, growing fast, attaining broiler size quite early in the season, hence their value.

Have a brooder system that follows nature, feed right. Keep the youngsters out on range where they find plenty of bugs and worms, and they will require little feed. Plenty of shade, fresh water and grit.

There must be proper housing, nourishing food, pure, clear water and strict cleanliness to keep up good health. Pure food is not only necessary but it must be fed wisely and its effect upon the fowls duly noticed.

The farmer needs the fancier to furnish him good stock. The fancier nees the business of the farmer because there is where he can find an outlet for his stock, which is good but not strictly fancy from the show room point of view.

The difference between green bone and ground bone, is that the former contains the natural juices, rendering it more soluble. It also contains a larger per cent of nitrogen because of the blood and bits of meat which always accompany green bone.

There is no business of whatever name or nature but has its ups and downs, and the poultry business is no exception to this rule, I can assure you; but there are no more reverses in the poultry business than there is in any other good paying investment.

Do not let every fellow who comes along sway you from your purpose. It is well enough to take advice, but if your experience has taught you different, do not take it. I know men to-day almost at sea, in raising poultry, as they have tried to take every hobo's opinion that came along, and lost sight of their own object.

For hen eggs the right temperature in operating an incubator is 102 to 103 degrees. The heat may drop to 80 degrees for a few hours with no material damage save to retard hatching. The thermometer may go to 110 degrees for an hour or so without fatal results, but a high temperature is more dangerous than a low one.

In setting hens let the nests be as near the ground as possible in as cool a place as possible in summer, but during the winter or cold months this is not necessary. Be careful to make your nests low where the hens can walk in on them and never in a barrel or box where they will be compelled to jump down on the eggs.

Some eggs are only partially fertilized. The germ is feeble and will die in a few days under any circumstances. When testing eggs on the fifth or ninth day, if any germs have died it will be apparent by a distinct red line in the form of a circle on the side of the egg. These eggs should be removed from the hen or incubator at once.

Cooking the food for poultry sounds well, but has not proven beneficial, except for a short time when forcing was necessary.

If a balanced ration is considered necessary for the cow in order to bring best results it is equally important for the hen. W. P. LAIRD.

Oil City, Pa.

Hens which are more than two years old do not lay as many eggs as their younger sisters, but the chicks hatched from them are always stronger and quickly develop.

Did you ever have one little hen louse on you and think you had a hundred? If so you can form an idea of what a hen endures when covered with the pests. Begin early to fight them.

Ducklings can stand almost anything but an overplus of heat either from a brooding system or the sun. Overheated by the former causes leg weakness, and the latter vertigo, killing them almost instantly.

Remember that in purchasing birds that poor stock never wins and you should get the best birds obtainable. Try to improve them and you will have no trouble in disposing of your surplus stock, as they will sell on their merits.

This season there are practically but two varieties of pears. The Sudduth, which has not blighted and others which have.

Home Visitors' Excursions to Indiana and Ohio—Sept. 2, 9, 16 and 2?

The Chicago Great Western will on every Tuesday in September, sell through excursion tickets to Indiana and Ohio points, at one fare plus $2.00 for the round trip. For further information apply to H. I. FAY, Ticket Agent, St. Joseph, Mo.

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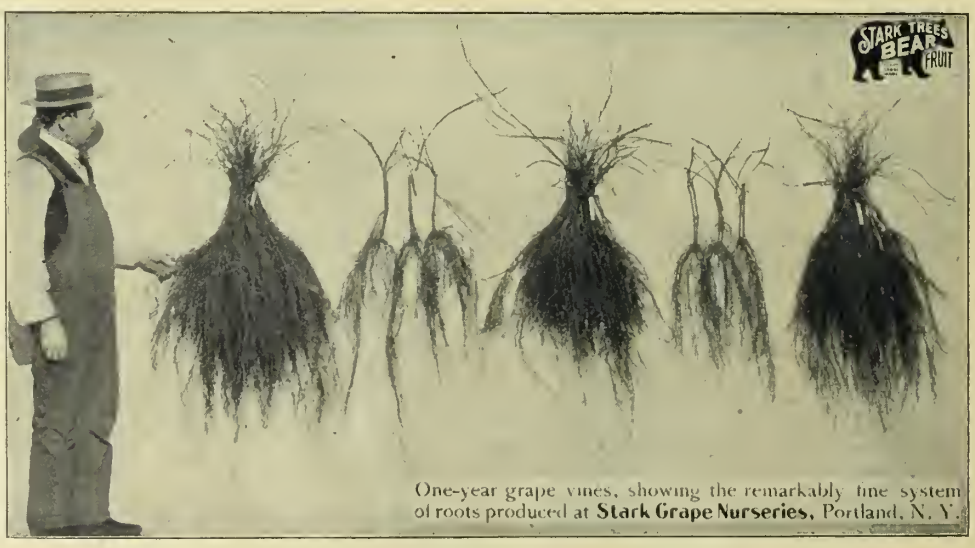

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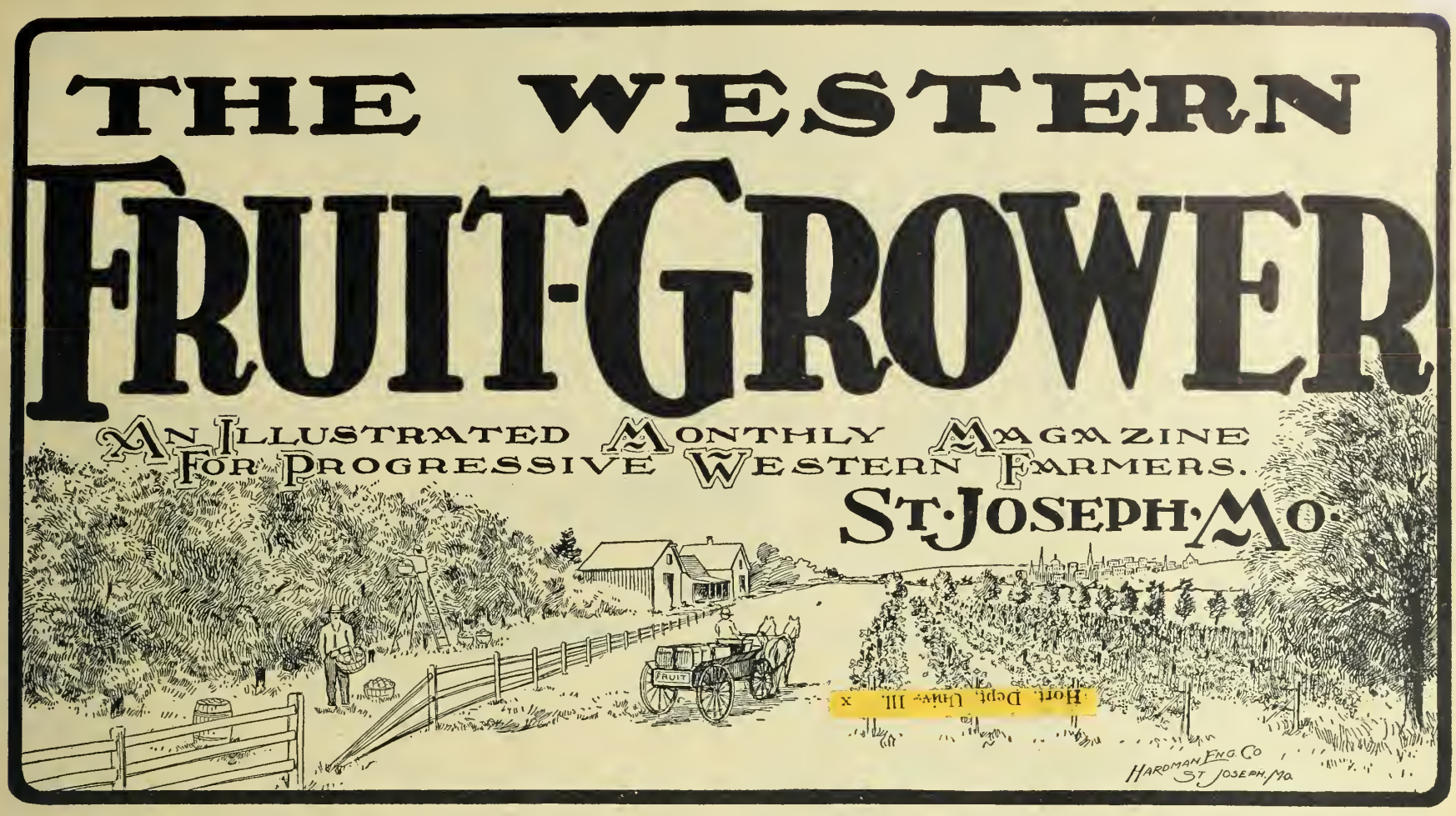
Volume Twelve OCTOBER, 1902 Number Four



Hort. Dept. Univ. Ill. x

Apple Crop and Prices

The apple situation this month is almost as unsettled as it has been during the last two months. Reports this month indicate that in most sections the crop is turning out better than was expected, although in some places the reverse is true. The improvement in the crop is due to several causes, among them the fact that the late rains have caused the apples to increase in size remarkably well. Another is that the early frosts in the Middle West and the consequent cool weather made ideal ripening weather, and the fruit held on remarkably well. It is a fact that there are still some Jonathans in the Middle West which are yet ungathered, or were on Oct. 10. This is unusually late, and shows how the fruit has held to the tree.

In the Missouri River orchards, which comprise those of Northeastern Kansas Northwestern Missouri, Southwestern Iowa and Southeastern Nebraska, the apple corp is better than early reports indicated. Where first it was thought there would be little fruit, there is an abundance, mostly of excellent quality, Yet the buyers did not expect the crop and are not as numerous as they should be.

Prices are not quite as high as growers had expected, in most cases, yet there is a wide divergence in sales which have been made. Some growers contended that apples should bring $2 a barrel for No. 1 and 2 grades, buyer to furnish barrels. This was believed to be too high, yet conservative estimates were that $1.50 a barrel was none too high. A great many sales were made throughout the West at this figure, yet as picking time approached the orchardists who had only a few barrels of apples accepted lower prices and the market broke somewhat, and fruit sold from $1 for Ben Davis up to $1.50 for the same variety.

One feature of the case which is hard to explain is the difference in price which is manifest in our crop reports published elsewhere in this issue. It will be noted that in sections not far removed from each other the price varies as much as 50 cents a barrel for the same kind of fruit. It is hard for growers to understand this, and it is evident there is faulty distribution somewhere, else the prices would be more nearly equal. A part of this difference is undoubtedly due to the fact that buyers were scared out of some sections owing to the fear that fruit would not be plentiful. This difference in price is also partly accounted for by the quality of fruit. It is notable that those orchards which were sold first were those which have been well sprayed—around St. Joseph, for instance, the orchards of Messrs. Maxwell, Clark, Squires, Roundtree, Martin and others which were first sold were all well sprayed throughout the season. There has certainly been a discrimination in favor of the sprayed fruit so far as finding ready sale was concerned, at least, and in most cases this discrimination also extends to the prices which were paid.

As indicating the wide range of prices we submit the following from a Lockport (N. Y.) paper of October 7, which D. T. McCarthy, a reliable grower, says correctly represents the situation there:

"The apple buying business is very brisk in Lockport at this time. Pittsburg has over a dozen representatives here and others are present from St. Louis, Chicago, Boston, Cleveland and other large cities. Representatives of Armour and Company are scattered throughout the county with about a million dollars at their disposal, buying apples. Armour has purchased almost the entire crop in the vicinity of Ransomville. The average price paid for the fruit is $2.25 a barrel and over 100 carloads a day are being shipped to the west from this section."

This price, of course, includes barrel and packing, which is usually estimated as amounting to 50 cents a barrel. This will leave $1.75 per barrel, net, for the fruit. Buyers have claimed prices in New York as being very low, but growers have contended all along such is not the case. It is likely this talk of low prices in New York has attracted all the buyers to that section leaving the West with a scarcity of buyers. The prices which are being paid would indicate that later in the season prices will have to advance, for it is not to be expected that buyers who paid $2.25 a barrel for their fruit will allow the market to break very heavily. Therefore we believe that the grower who packs his fruit carefully and stores, should come out all right later in the season.

As stated before, the small growers, in most cases, broke the market and helped to reduce the price for apples. A great many large growers are storing their fruit and will market it themselves rather than take the price offered—about $1 to $1.25 per barrel. It is certain that more apples have been stored by the growers themselves in the West this season than ever before in one year Just how this plan will work out is hard to say. If the growers understood the art of packing apples so that they will keep well, then they will likely be all right. If they are inexperienced and have put in apples which should not be stored, and have been careless in placing the fruit in packages, there will be disappointment when the fruit is opened for inspection a few months hence. Many growers who have stored were not prepared for the work, as they intended to sell, and there is certain to be disappointment among some persons. But most of the fruit this season it is thought, will keep remarkably well.

Another difficulty which confronted the growers who did not sell, and at the last moment were compelled to handle their own fruit, has been the fact that the pirce of barrels has steadily advanced, and for a time none were to be had at any price. Opening the season at 25 to 28 cents, prices have gone up to 33 to 38 cents, and in some cases even higher. Added to this was the fact that space in cold storage houses was early sold out, and about October 1 there was no space available in some centers. All these things conspired to work against the man who did not sell his crop and who was forced to handle it himself.

But there were others who had sold their fruit who had troubles, too. In some sections growers sold their No. 1 apples for $1.50 to $2 per barrel, their No. 2s for about $1 a barrel less. This

PACKING APPLES IN ORCHARD OF M. J. RHUE, TROY, KANSAS.

sale looked all right until packing time came. Then some of the small growers in the vicinity, who had only a few hundred barrels of fruit, put their price down to a low figure, and the buyers contended the market had broken. They contracted for the apples, however, in other orchards, and to secure themselves they culled the fruit so closely that any apple which was accepted as No. 1 was really very fancy fruit, and lots of apples which should have graded as No. 1 went for No. 2s, at a low price per barrel. The growers protested, but in many cases the contracts had been so loosely drawn there was no recourse. This condition only shows the truth of our statement some time ago that this is a bad way to sell apples early in the season. If one price is made for No. 1 and a lower price for No. 2 apples before the size of the crop is known, the grower can easily get the worst of the deal. If the price goes down, as buyers claimed was the case this season, the packers will see that there are very few No. 1 apples and lots of No. 2s. A much better way is to make a price for No. 1s and 2s, and then there is less chance for trouble.

At the present time it looks as though our old friend Benjamin Davis had been somewhat used up this season. There has seemed to be more discrimination against Ben on the part of buyers than ever before. How often have we heard the claim made by buyers that they could not afford to pay much more than half as much for Ben Davis as for Jonathans? How many times have the growers been told by the buyers that they would take all the Jonathans, Winesaps, and even Missouri Pippins; but they wanted just as few Ben Davis as possible? We have heard this very often this year, and it seems that the feeling has been that Ben Davis has received a check this season. But part of this is easily accounted for. Ben Davis have not done so well this season as they did a year ago, in spite of the drouth. In fact, the Ben Davis in many orchards are not near up to the standard of former years. In many orchards which we have visited the Ben Davis trees were so full of fruit that the apples were small—and this has helped the buyers to beat down the price, for a Ben Davis has to be big, well colored and well grown to attract the attention of buyers everywhere.

The Jonathan has been the favorite in the West, and some fine fruit has gone out of this section. We predict a demand for Jonathan trees this season. Certainly the variety has done well this year—fruit large, well colored, ripened late and held to the trees like they were tied on. In this connection we will quote from a letter from B. F. Wampler, Carthage, Mo., who quotes our advice to growers last month, to not sell their Jonathans alone, but to make them help sell other less desirable varieties. Mr. Wampler says:

"Now, is that a fair proposition? Is it treating the Jonathan or those who would purchase it fair? I think not. Let each variety stand or fall on its own merits. When people ask for Jonathans they don't want to be forced to take ten bushels of some low-grade apple in order to get one bushel of their favorite sort. Suppose you put into practice your own proposition by saying to the people that in order to secure a copy of the Western Fruit-Grower they must buy nine copies of some low-grade paper? In either case a sale is spoiled, a customer lost. It is time the seller realizes that the buyer has good judgment of his own and the right to use it; let him pay his money and take his choice, and let growers cater to his wants. The following lines express my position:

The Ben Davis is a fraud—
That's the word that's gone abroad;
People found it poor and tough,
And say they have had enough.

Jonathan is good clear to the core,
So people call for more and more.
It deserves a much better fate
Than to be Ben's running mate.

Old Ben shows lots of "cheek"
The hand of Miss Jonathan to seek;
He should mate with his own class,
Which are only good for apple "sass."

Miss Jonathan is much more fair,
With a quality Ben can't compare;
She has a good and honest look,
Is good to eat—requires no cook.

Why waste so much beautiful skin
To wrap so little virtue in?
Oh, 'twas done just to deceive
Some fickle modern Mother Eve.

A letter from Daniel Lowmiller, Parkville, Mo., says he is storing his apples, not being able to get the price he thought they were worth. A barrel of York Imperial from Mr. Lowmiller are extra fine, and he says all his fruit is strictly first-class. This fruit can be secured by someone who wants it at a fair price, already in storage.

W. T. Flournoy, Marionville, Mo., says buyers are not offering much more than half of last year's prices for apples in Southern Missouri, and $1 to $1.25 per barrel are usual quotations. Most orchards have been sold in lump, but a number of the larger growers are putting fruit in storage.

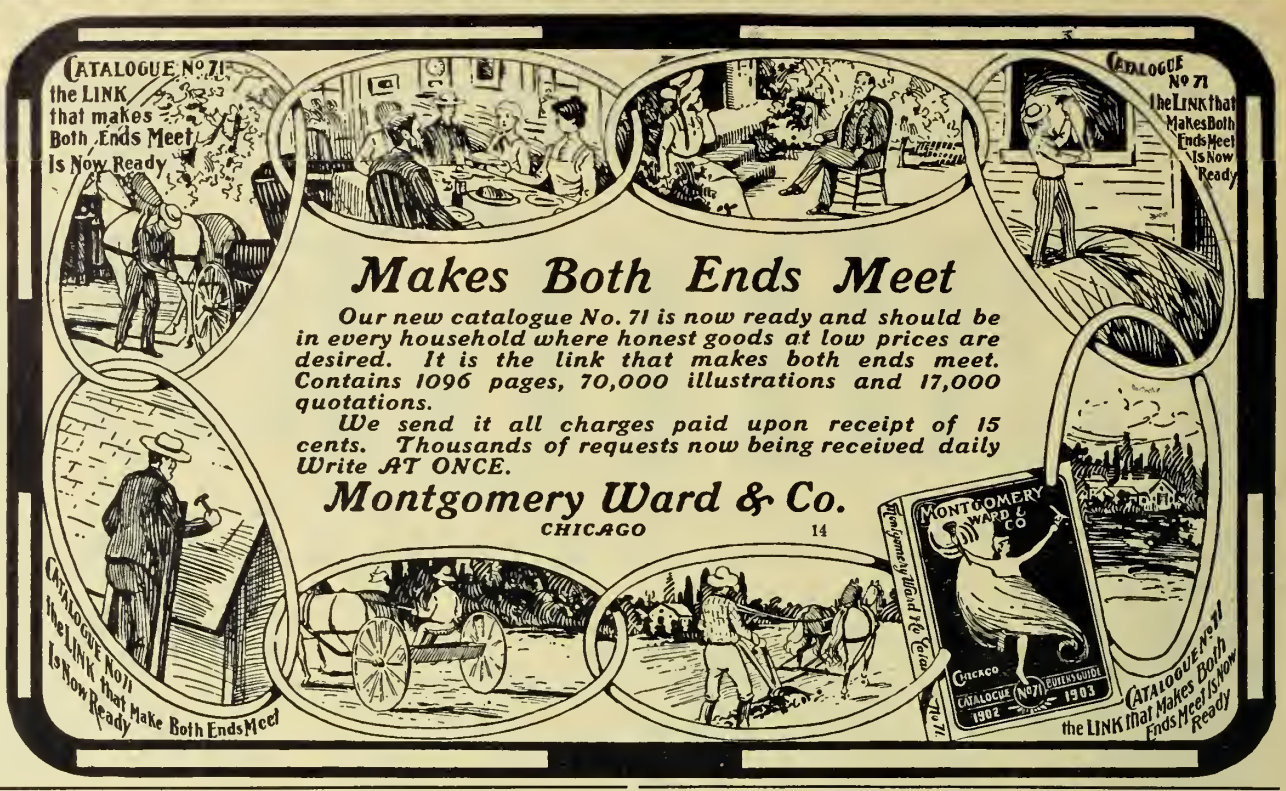
W. S. Martin, DeKalb, Mo., has sold his fruit for $2 a barrel, but this price, we believe, is f. o. b. cars and includes barrels and packing. Note the variation in prices.

W. R. Roundtree, who sold the fruit from his three and a half acres of Jonathans for $1,250, has sold his Ben Davis at $1.20 a barrel for the fruit, the total receipts from his orchard amounting to a handsome sum.

Speaking of this orchard, we are reminded that canker worms first induced Mr. Roundtree to begin spraying. The worms were defoliating his trees several years ago, when a good crop of apples were promised. He hurried to town, bought a Myers spray pump of a local dealer, and went to work. By persistent effort he has kept insects in check, and this year has been well rewarded for his work. It is possible there are many other growers who have been led to begin spraying because of ravages of canker worms.

The illustration on our first page shows an apple picking scene in the orchard of M. J. Rhue, Troy, Kan. This is one of the prettiest orchards in the West, and at the time this photograph was taken (a year or so ago) a $11,000 crop of apples was being harvested. Mr. Rhue has a good crop this year, although by omitting a late spraying he believes a late brood of codling moth was allowed to inflict damage which could have been prevented. Mr. Rhue believes in wide planting of trees, preferring 32 feet each way, and in some cases even 40 feet. His trees are 32 feet apart, and in a great many cases the branches unite. There are a number of good orchards near Troy, for Doniphan county will be, if it is not now, the best apple county in Kansas.

J. M. I.



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Peach Trees
433,000 one year from bud and over 700,000 in dormant bud by actual count. Elberta, 272 000 one year from bud. Varieties true—no disease. All in land never before in peach trees.

Pear Trees
100,000 Kieffer, the best commercial sort. Full assortment of other varieties. All grown on well branched, whole roots, imported French stocks. Will cost you no more than others charge for trees grown on Japan stocks and in our opinion are worth double.

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110,000 in stock—mostly Richmond, Montmorency, Wragg, etc. Just the sizes you want.

Apple Trees
584,000. Others may grow more apple trees, but none grow any better quality. Some and see them, or order and the trees will show.

Plum Trees
30,000, on Plum stocks—high grade. Best sorts for general planting.

Write for our new Condensed Wholesale and Retail List.
We pay the freight at prices in this list.

Breeding of Apples.

This is the time of year when the horticulturist who contemplates setting a new orchard should select, in his neighborhood or county, such individual trees as have special merits and should mark them as trees from which to cut scions when the proper time for cutting comes. Then with these scions he can either do his own grafting or have some reliable person graft for him.

This method is in line with progressive, scientific breeding as a foundation upon which to start an orchard. By following out this plan the apples will be ready for the market sooner than they would if the orchard were set at once from stock obtained from a nurseryman, and it also obviates the risk of their bearing no apples at all. An orchard of trees obtained in this manner, properly planted and cared for, would be a pleasure as well as a very profitable investment.

To substantiate the above I will give my experience of thirty-two years of apple growing in Shawnee County, Kansas. In 1869 I planted 50 yearling trees; in 1870, 550, and in 1872 800, making an orchard of 1,400 trees. All of these were on similar ground and planted and cultivated alike by myself. The orchard was on what we now consider ideal orchard ground and was noted for its beauty.

In the first lot were 10 Jonathan and a few Missouri Pippin, which bore ordinary apples, but far from paying. In the second lot were 20 Jonathan, fine symmetrical trees, which never bore a bushel of marketable apples. On alternate years they bore a full crop, but the apples were small and irregular. In the third lot were 16 Jonathan, which every year bore from a medium to a full crop of fine No. 1 apples. There were also 30 Missouri Pippin, five of which failed to grow. There were only two years in which the remaining 25 trees bore apples large enough to go as No. 2 and never a barrel of No. 1. The following year I filled in the five missing trees and every year they bore fine apples, mostly No. 1. They were planted right amongst the other trees. Mr. Campbell, the nurseryman of whom I bought the trees, told me afterward that these 16 Jonathan and the last five Missouri Pippin were from scions selected from his young and vigorous orchard, which was noted for its fine large fruit, while the others were from an older and poorer class of trees. There were also over 200 Winesaps which made me money. Some of them being excellent trees, others absolutely worthless.

Across the road from this I have another orchard, 10 to 14 years old, in which about the same conditions exist. I frequently pass two small orchards, one on each side of the road. For six years the one has had a good crop of apples almost every year, while the other has seldom borne anything at all. The conditions are in favor of the unproductive orchard.

This state of affairs exists all over our country. Now, the question is, What is the matter? Have our nurserymen bred their commercial apples up by their method of getting scions or anywhere, regardless of their merits, just so that they are true to their name? No wonder Major Holsinger, in a late number of the Fruit-Grower, makes the following statement: "I spent nearly thirty years and nearly as many hundred dollars in experiments and just learned that I don't know anything about orcharding."

Our berrymen, chickenmen and stockmen propagate from such stock only as have special merits. Is is not time that we should do the same? I am satisfied that if apple raisers had selected scions from trees of special merit and with proper care there would be less disappointment now and no need of Major Holsinger's confession.

PHILIP LUX.

Topeka, Kan.

Selecting Strawberry Plants.

I notice Mr. Howard's remarks about "Selection of Strawberry Plants." He and several others misuse this word and creat the impression that it means bud propagation. For instance, he says "Selection is by far the better way of securing and maintaining high standards of excellence." He should have said selection of buds or layers or runners. Taking him on his own meaning, he is teaching error. Bud variation is only a sport and generally bad and coming from a parent (so to speak), trying to get back to a former type, is unreliable. One Western man wants us to believe, and practically says, that no one selects the best plant but himself; while as a fact everyone does it. If I send an ignorant negro to dig up a dozen or two plants for himself, he is sure to get the best he can find. Having a lot to pick from, what man fails to get the best? And yet after all these years you can't get an improved Gandy, Sharpless, Bubach, or Crescent; and no man can live long enough to have one chance in a thousand of finding any "variation" worth preserving. Why should we go on hands and knees looking for variation when we can select the best fruit from the healthiest plant and sow seeds and get all the variations we like. Every vegetable and fruit we have today is gotten by selection of seeds from the best, and practically nothing by selection and bud variation. There is such a thing as bud variation, and it has benefited floriculture a little; but except for catchpenny purposes, why advocate a method that has never given us a paying result? There is not today, after a hundred years of trial by buds, a single fruit catalogued in the English language that owes its origin to anything but seed or seminal propagation. I read in your paper some time ago a claim that there were many of our fruits due to bud variation. Let the bud variationist name a few; in fact, give us the name of one fruit (any sort) that any man claims due to this cause. It is enough to make the intelligent horticulturist stop reading the papers filled with this sort of false teaching. I have not the time to reply to such claims, but someone should call them down. If any one of them will give us some facts to verify his belief, I will cheerfully agree not to deal in personalities and show that in horticulture "bud variation" has no value whatever in practice and give best authorities in support of my position. Yours truly,

ARTHUR T. GOLDSBOROUGH.

Washington, D. C.

Ozark Apple Growers' Association.

The apple growers of the Ozark section of Missouri and Arkansas have organized an association under the above title. The objects of the association are to advertise the apples of the Ozark country, to secure co-operation of the members in buying barrels and other supplies, to secure concessions in freight rates, etc., and to keep members posted as to prices, crop conditions and other facts which go to control the apple market.

As we understand it, this association is not intended to in any way interfere with the proposed national association to be formed at St. Louis November 18 and 19. The Ozark organization is more commercial in its character, and is to unite the growers of a section in disposing of their fruit to the best advantage. The national organization to be formed at St. Louis is more in the nature of an advisory organization, to gather and disseminate reports as to national crop conditions, to discuss different phases of orchard work and such matters as that. There is room for the national organization and also for a great many local organizations such as that formed by the Ozark growers. The apple business is too important an industry to continue longer the methods of growing and marketing the crop which have been in use.

Please Tell Me

Who Needs My Book

I ask you for the name of a friend who needs help—that is all.

Just send me a postal to tell me the book he needs. No money is wanted.

Do that much and I will do this:

I will send him the book, and with it an order on his druggist for six bottles Dr. Shoop's Restorative. I will authorize that druggist to let the sick one test it for a month at my risk. If it succeeds, the cost is $5.50. If it fails, I will pay the druggist myself.

There was never a sick one who could refuse such an offer—and I am very glad to fulfill it. My records show that 39 out of each 40 pay for the medicine gladly. I pay just as willingly when one says that I have failed.

The reason is this: After a lifetime's experience I have perfected the only remedy that strengthens the inside nerves. Those nerves alone operate every vital organ; and no weak organ can be well again until its nerve power is restored. I want those who need help to know it.

For his sake, please tell me some sick one whom common remedies don't cure.

Simply state which book you want, and address Dr. Shoop, box 436 Racine, Wis.

Book No. 1 on Dyspepsia,
Book No. 2 on the Heart,
Book No. 3 on the Kidneys,
Book No. 4 for Women,
Book No. 5 for Men (sealed)
Book No. 6 on Rheumatism.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

Made for Farmers

That's why it pleases them. Farmers who are remote from machine shops, etc., want an engine which will work right along, with no need of a machinist or repairs. The Weber Junior (2½ horse power) does this, and that is why it is the favorite gasoline engine for farm use from Maine to California.

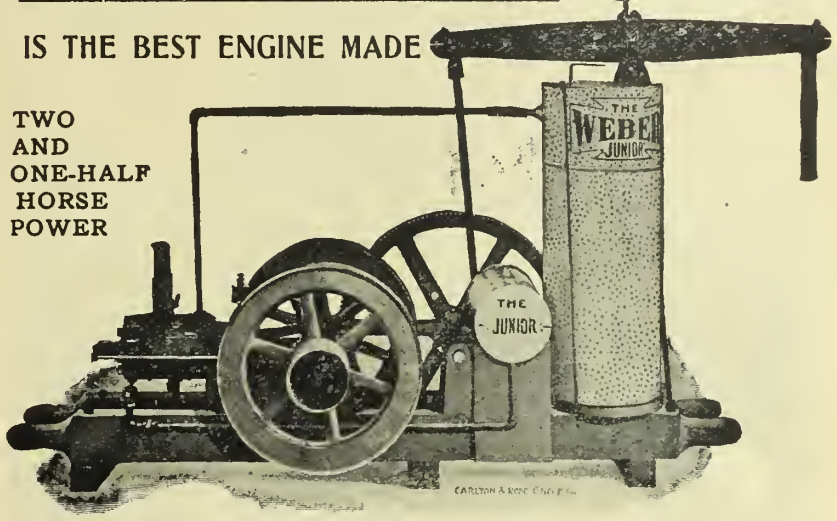
Fruit farmers need a good gasoline engine for pumping water, sawing wood, grinding feed, etc., and especially for operating spray pumps. The Weber Junior is used by many readers of the Western Fruit-Grower for just these purposes. It can be mounted on a wagon and will furnish power for spray pumps which will produce the fine mist so necessary to successful spraying. It is the cheapest power one can use.

THE WEBER JUNIOR

SIXTEEN YEARS OLD

IS THE BEST ENGINE MADE

TWO AND ONE-HALF HORSE POWER



Not only will the Weber Junior run on any farm without breakage, not needing an experienced engineer, but it is shipped from the factory crated ready to run, and can be set up by anyone. It is thoroughly tested before leaving the factory, and any defective parts will be replaced free for two years from date of purchase. Can you ask any better proposition?

Send for descriptive circulars, illustrated, which are free for the asking.

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Box 1114-F. KANSAS CITY, MO.

H. J. WEBER & SONS NURSERY CO.

Nursery Station, St. Louis, Mo.

Growers of HIGH GRADE **General Nursery Stock**

Have just issued their "Illustrated and Descriptive Catalogue" also "Price-list" for the fall of 1902 and spring 1903; describing and pricing over 600 varieties of Fruit Trees and Plants, Ornamental Trees and Shrubs, Roses, Evergreens and Hardy Perennials; also gives hints in transplanting, spray calendar, etc. Send for one today, free to all applicants; correspondence solicited. Address

H. J. Weber & Sons Nursery Co., Nursery Station, St. Louis, Mo.

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These new nurseries have to offer this season a full line of well grown nursery stock, one and two year old trees. Varieties best adapted for commercial planting, our specialty. A large stock of Apple, Peach, Plum and Pear trees, small fruits, ornamentals, roses, shade trees, etc. Please write us for prices and catalogue. We kindly solicit your business and guarantee you satisfaction. Good stock of Apple trees propagated from selected bearing trees

TIPPIN & MOORE, Proprietors

MOUNTAIN GROVE, MISSOURI

Cold Storage

Our plant is situated right in the heart of the best apple district and to get good results, fruit should be stored soon as packed. Our railroad facilities are the best, and we take care of the fruit as soon as received. When apples are put away, it is hard to determine where the best market will be, and by storing near base of supply you get the advantage of all the markets and very often you save the freight one way. For other information call or write

St. Joseph Ice and Cold Storage Co., St. Joseph, Mo.

Schulze Trees Fruit

Where Others Fail. Result of

BEST WHOLE-ROOT PROCESS

Planters guids and fruit book free. Specialties: Apples, Peach, Pear, Cherry and Plum. Offer a carlot selected Seedling Peach of Elberta and Champion, etc. Up-to-date varieties. pay: Golden Ben Davis,, Black Ben Davis, Delicious, Apple of Commerce, etc. Wholesale direct to planters. Guarantee pedigree stock, true to name.

Schulze Bros., Brussels, Ill., Deer Plain, Ill.

The Dust Process of Spraying.

Last month we referred to two profitable crops of apples which had been sold near St. Joseph, those of H. A. Squires, Wallace, Mo., and W. D. Maxwell. This month we are pleased to present two illustrations showing scenes from these orchards. Both of these are interesting, for both growers used the dust process of spraying their trees this season, with the very best of results.

Mr. Squires has 25 acres of apples, only 18 acres being in bearing. From this orchard about $2,600 worth of apples were sold this season for cash. Mr. Squires used only the dust process this year, having used the liquid process heretofore. He is well pleased with results, believing there is a great saving of time and labor.

BEN DAVIS TREE IN ORCHARD OF W. D. MAXWELL.

Mr. Maxwell, as is well known, has been one of the leaders in introducing the dust process of spraying. He has used it for a number of seasons, and each year his results have been better. Last year he sold his crop of fruit on the trese for $2,200. This year the fruit from about 30 acres brought $3,410 cash, the buyer even paying to have the apples picked from the trees, packed and hauled to town.

We visited this orchard just as the first Jonathans were being picked. This variety was exceptionally fine, and orchardists who saw the trees breaking with their burden of ripening fruit pronounced it one of the best crops of apples ever raised in the West. The Ben Davis were not so good, being undersize on account of great quantity on the trees. This fruit was bought by H. A. Hupert, representing Porter Bros. of Chicago. Mr. Hupert is a most careful buyer and packer, and it was noticeable that in packing he had the fruit graded carefully and culled severely, so that the fruit which was marked No. 1 was really fancy stock. Yet notwithstanding this careful grading and severe culling, the actual results showed that 86 per cent of the Jonathans were of the very finest class. Graded in the ordinary way, the percentage of No. 1 would have been about 95.

Mr. Maxwell has requests from all over the country, asking about the dust process, and he asks the Fruit-Grower to make certain facts public to save much correspondence. In the first place, he says many have failed to be successful with the dust process on account of not having used enough paris green to kill canker worms. The dry mixture will allow a heavy application of poison without injury. This season Mr. Maxwell did succeed in scorching his foliage slightly, but not to injure the crop in any way. Another mistake is to make too few applications. At the Missouri Valley Horticultural meeting, Secretary Goodman and Dr. Whitten reported concerning their experience when three sprayings were given, but Mr. Maxwell says this is not enough. The dust can be easily, quickly and cheaply applied, he says, and the work should be kept up longer than the liquid process. He sprayed eight times the past season, and says that at picking time, even after very heavy rains, there were traces of the lime dust between some of the apples. The experience of others is along this line. It is claimed the nine sprayings can be given at much less expense and labor than three liquid sprayings, and will carry the work to a later date. Both Mr. Maxwell and Mr. Squires used the Cyclone sprayer, made by Dust Sprayer Mfg. Co.

Secretary Goodman, as noted in the reports of the Missouri Valley Society meeting, published in this issue, feels much encouraged after this year's experience using the dust sprayer. He uses the Jumbo sprayer, made by Leggett & Bro., New York, and made three applications of the poison. But this, Mr. Maxwell contends, it not sufficient for best results.

The illustrations presented herewith, showing packing scene in the Squires' orchard and Mr. Maxwell in his own orchard, with a Ben Davis tree for a background. An effort was made to get good photographs of the Jonathan trees, which were fuller of fruit, fairly breaking down, in fact, but the very dark, almost black color of the apples would not allow the fruit to show up well in the cut.

PACKING APPLES IN ORCHARD OF H. A. SQUIRES.

Growth of Dust Process.

Mr. G. C. Johnson, manager of the Dust Spraying Mfg. Co., Kansas City, Mo., recently showed the Fruit-Grower some advance pages of the forthcoming catalogue of this company, which traces the development of the dust process of spraying, and at the same time presents some letters from some growers which are even stronger than the statements of Messrs. Maxwell and Squires. Mr. Johnson has been a leader in pushing the dust process of spraying, and his letters come principally from commercial growers. Until the present season few of this class have used the dust process, and reports from them indicate that there will be a great demand for the dust process machines next season.

Mr. A. L. McClay of the firm of A. L. McClay & Co., who has large orchard interests in Southern Illinois, used the Cyclone Dust Sprayer the past season, and writes the manufacturers as follows:

"The dust spraying machines I bought of you have done very satisfactory work, and I am extremely well pleased with results. Fruit is clean and almost free from all imperfections. Crop is all and even more than trees should carry, oldest trees being only eleven years set. Liquid spray is satisfactory on Missouri Pippin and Willow Twig, but on Gano and Ben Davis liquid has dulled the surface and in some instances rusted apples on one side. I am a firm believer in the dust process and shall give it preference next season."

Later Mr. McClay wrote: "Fruit continues to do fine. I will want another machine next spring with all improvements. My apples are the finest by far I have seen in all my travels, and I am not afraid to stump the United States to show up as good a lot of 12,000 barrels (estimated) as I have."

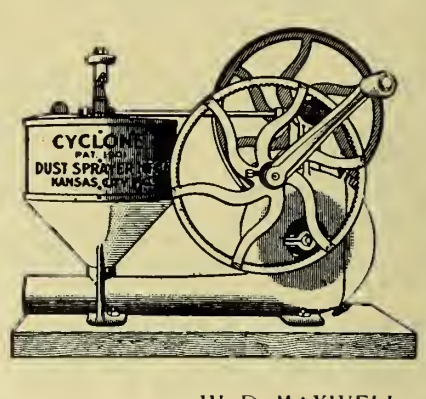
"There was some trouble in getting orders filled on time last spring," said Mr. Johnson, "for naturally everyone wants sprayers at same time. We are preparing for better business next season, but must urge customers to place their orders early to avoid delay. The experience with buying apple barrels at the present time, when it is almost impossible to get them at any price, shows the value of early ordering of any commodity which will be wanted by a great many persons at the same time. We have a few castings for the machines left from last season, and are still prepared to furnish machines at old price of $22.50. But the new castings, although the pattern is not changed, will cost more, and our Cyclone sprayer this season will have to sell for a little more."

Mr. Johnson says reports in favor of the dust process this year are far more favorable than anyone had expected, and that the forthcoming catalogue of the Dust Sprayer Mfg. Co. will contain some statements which will be a revelation to those who have not investigated the matter. This catalogue is now being prepared, and besides reports from growers who have used the Cyclone, will have a great deal of information concerning the new method of fighting insects and fungicides among orchard crops. Those readers of the Western Fruit-Grower who are interested in grow-

Satisfaction Insures Success

THE CYCLONE

And Our Formulas Make Fruit-Growing Profitable



H. A. SQUIRES, Wallace, Mo.

"The Cyclone and your formulae are the cause of my success. You can say anything you wish and I will vouch for it."

$2,600 from 18 acres

W. D. MAXWELL, St. Joseph, Mo.

"The Cyclone gives perfect satisfaction. It is the only perfect dust sprayer made. The only thorough process before Horticulturists."

$3,410 from 30 acres

Dust Sprayer Mfg. Co.

KANSAS CITY, MISSOURI

ing tree fruits should write for this catalogue, which will be ready in about a month and is free for the asking.

The Black Ben Davis as I Found It At Home.

As I have before said publicly, about the Black Ben Davis-Gano contention, the truth is what we should know. Therefore, I made a long-contemplated trip to Washington County, Arkansas, within the last ten day to see for myself the trees in bearing, if there were any to be found in connection with another matter which took me to that state. I had long been uncertain as to the true identity of the apple which has been pushed by Stark Bros., and had promised myself and them to some time critically investigate the matter on the ground where it was said to exist and learn the facts for myself. It is possible that some one may suppose that I have been hired to do so, but I affirm on the honor of a man, that the Starks have not even hinted any such thing, nor would I have gone a step if they had suggested it. However, Mr. C. M. Stark kindly took me to the places where I could see what I was looking for, thereby saving me much time and trouble.

I first went to the place where the original tree was said to have stood. I had doubted whether there was such a place, but it was found, if we are to believe the word of honest-minded country people. The spot was shown me at the rear of a log cabin by the two old people, Mr. and Mrs. Thomas, who live there. They told me the tree died in 1889, because the chickens had roosted on it so much as to injure the branches for several years before; and, that the largest branch had leaned over the back part of the low roof and was cut off the year before. The tree had also borne very heavily from the time it was first konwn by them. They both spoke of the apples in very approving terms, as being better tasted than Ben Davis and keeping later. The place where it had stood is not in line with the orchard trees that stand nearby and are the oldest ones on the farm.

The next person visited was Mr. Stephen Thomas, who lives on an adjoining farm. He told me that he had known the old tree that was the original of the variety that has been called Black Ben Davis since it died, and had often eaten the fruit from it. He and his wife and two sons all told the same stories of it in all essential particulars. They told of the chickens injuring the tree by roosting in it so much, and of the cutting off of the big branch causing its death. They said it bore regularly, and that the fruit kept later in the spring than Ben Davis.

Mr. G. W. Collins, who lives a mile or more from the Thomases, and is a local nurseryman, was then called upon. He said that he had lived in that neighborhood from before the time the Black Ben Davis apple tree came into existence until the present, and that he knew it well from the time it began to bear enough to attract attention. He said that "Parson John Black" once wanted a cabin built in the woods where Thomas now lives and that he "carried up one of the corners," as the pioneer expression goes, and that there was no improvement on the place then, although he could not recall the year. Rev. Black lived there for a number of years and then sold the place to a man named Reagan. The parson's name, Black, is perpetuated in the present name of the apple.. It was while Reagan was living there that the tree about which so much stir is now made attracted attention, because of the fruit it bore. It was so red and kept so well. It was also of good size and a good apple to eat, although there were many other good seedlings all over that region, and plenty of grafted kinds. Mr. Collins said that in 1882, a neighbor, George Guthrie, took a few "cuttings" from the tree at Reagan's and made some root grafts, which he set in his garden in a little row. When they were one year old (which was the common age to set apple trees there), he set some of them in his orchard, but he did not then know how many. Since then he has often seen them and got a few scions from them to use in his nursery. There were ten of them in that orchard at first, but one of them is now dead. He said that Guthrie's wife gave one tree out of those in the garden to her mother, Mrs. Beaty, who lived on the next farm, but that it died in 1901, after it bore a lot of fruit.

I next went to the Beaty farm where a son of the woman who was said to have planted one of the second generation trees now lives. He, Alexander Beaty, told me that his sister, Mrs. Guthrie, gave his mother three of the trees that her husband grew from the cuttings from the Reagan place; that two of them were killed by the cattle and horses browsing them before they were old enough to bear, and that the other one bore the best apples he had in his orchard, until he built a rail pen around it to fatten hogs in, which killed it in 1901. Upon being asked why he did such a foolish thing, he said that it was thrifty and made good shade for the hogs.

The old Guthrie farm, now owned and occupied by John F. Bain, was the next one visited. Here I saw the nine Black Ben Davis trees that were grafted and planted by Guthrie. It was easy enough to see them before the place was fairly reached. The apples glistened through the falling rain. The trees were well loaded, although Mr. Bain said many bushels of samples had been gathered. There were plenty of Ben Davis trees of the same age in the orchard, but their fruit was dull in color beside the Black Ben Davis apples. Their foliage was almost all off the trees, while that of the entire nine Black Ben Davis trees was nearly all on and of a green color. I gathered fruit of both kinds with my own hands, in a pouring rain, and this I have in safe keeping for my own observation as to its behavior and quality when in fit condition to examine. I asked him to tell me about the comparison between this new apple and Gano. He said that he did not have the latter in bearing, but that he had seen it and did not think they were the same. He also said that he liked the Black Ben Davis better than Ben Davis for keeping and eating. This ended the first day's ramble, because of the continued rain.

The second day the rain continued, but I was determined to see Gano on the trees and secure some for comparison, from the same vicinity as the Black Ben Davis and Ben Davis apples that I had already gathered. About a six mile ride brought me to an orchard where Gano trees were bearing abundantly, and I gathered what I wanted. I then went to the farm of one of the best orchardists in Arkansas, where are 58 acres of Black Ben Davis trees four years old. They had a very few apples on some of them, but they were mostly imperfect. The owner told me that a few beautiful samples had been taken away by visitors. He said he had known the variety for many years and the Gano as well, and that they were not the same; and that as evidence of his opinion the 58 acres of the former spoke for itself. He also said he would plant about 75 acres more of it as soon as he could get the trees to set. He said he had kept the apples in the same cellar with Gano and Ben Davis and it outlasted them, in one case keeping until July 24th. He thought it was an apple of better flavor than either of the others.

Just before I took the train to leave, I met a man who had taken apples from the old Black Ben Davis tree in his wagon to Kansas to sell, and liked them to top off his load, because of their size and beauty.

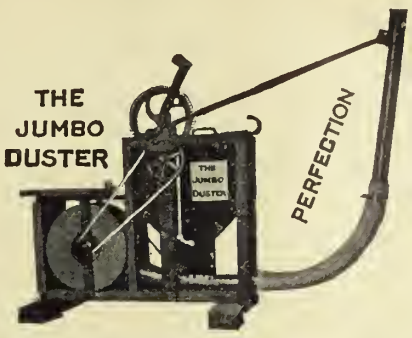
What I have seen and heard of this matter is evidence in my opinion, that there are differences between Gano and the apple that has been named Black Ben Davis. The latter is solid red, while Gano is usually lighter in color and has a semblance of stripes, if not those of a distinct nature. As to the flesh and flavor, they are to be judged when the apples all get fully ripe, when I will have more to say of this matter.

H. E. VAN DEMAN.

Washington, D. C.

The key to health is in the kidneys and liver. Keep these organs active and you have health, strength and cheerful spirits. Prickly Ash Bitters is a stimulant for the kidneys, regulates the liver, stomach and bowels. A golden household remedy.

Noting the good yields of apple trees published in a recent issue of The Fruit Grower, the Missing Link Apple Company, Clayton, Ill., sends a report from a Grimes' Golden tree thirteen years old. It bore 25 bushels of apples—one bushel of culls, three bushels of No. 2 grade, 21 bushels of No. 1 grade. This is certainly a good yield, and one to be proud of. Who has a better report?



THE JUMBO DUSTER

Rapid and effective in the orchard. Particularly adapted for distributing dry insecticides and fungicides, with lime as a conveyor.
Weighs 50 pounds, is 32 inches long, 24 inches high and furnished with four 3-foot 2-inch tubes. Capacity of reservoir, half bushel. It is intended to be mounted on the back of a wagon, or we can furnish on wheels. Circular will give full information. Ask for it.

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Has stood an Eighty Years' Test. Absolutely Blight Proof. Hardy as an Oak. An Annual Bearer. Attains Enormous Size and Age. Fruit of Superior Quality. Complete Booklet Free on Application.

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Write for our Price List of All Varieties of Fruit and Ornamental Trees, Plants, Shrubs, Vines, Roses, Bulbs and Forest Trees, Seedlings. Mailed free. Please mention the Western Fruit-Grower when writing.

AUGUSTINE & CO., GENERAL NURSERYMEN NORMAL, ILL.

For Apple Seedlings and General Nursery Stock

write the Wichita Nursery. Our specialty, stock True to Name. Certificate of Genuineness furnished. Each order receives the careful attention of the proprietor. Write for prices, get my stock and be convinced. Call on or address

Wichita Nursery, Wichita, Kansas

W. F. SCHELL, PROPRIETOR.

The Coming Blackberry Is the KENOYER---Why?

1. Earlier than Early Harvest.
2. Berry large as Erie.
3. Fine flavored as Snyder.
4. Rich glossy black.
5. Small seeds.
6. Large drupes or eyes.
7. Very juicy berry.
8. Core soft and never bitter.
9. Berries do not sunburn.
10. Large, robust canes.
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15. Heads off drouths.
16. Perfectly upright canes.
17. A productive variety.
18. Without a competitor.

10,000 plants ready for shipment.
Send for descriptive circular and plant price list.

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STRAWBERRY PLANTS

We have two or three million plants as fine as can be found. All leading varieties; Aroma, Rough Rider, Excelsior, Parker Earle, War-field, Monitor, Splendid, Sample, etc.
OUR RASPBERRY PLANTS are hard to beat. Cardinal, Munger, Cumberland, Kansas, Gregg, etc. Asparagus Plants, Austin Dewberry.

TEN THOUSAND PEACH TREES

Our prices are right. Send for catalogue. Discount on large orders.

ELMHURST NURSERY AND FRUIT FARM, Argentine, Kan., M. E. Chandler, Prop.

100,000 BLACKBERRY PLANTS

Snyder, Taylor, Stone's, Iceberg, Mersereau, Eldorado, Maxwell's Early, Agawam, Western Triumph, Erie, Ancient Briton, Lovett.

Also all the leading varieties of Strawberries, Raspberries, Gooseberries, Currants, Grapes, Asparagus, Wineberry, etc.

Get our prices before buying. Catalogue free. Address

L. J. FARMER, Pulaski, N. Y.

The St. Joseph Society.

The September meeting of the St. Joseph Horticultural Society was not well attended—members were too busy picking apples. Mrs. W. D. Maxwell was the only one on the program who had her paper ready, and we present it herewith. Mrs. Mawell is an expert in preserving and canning fruits, and is squalified to speak on the subject.

A committee composed of D. A. Turner, Robert Onstot and P. H. Woods was appointed to visit the county court and try to secure an appropriation for the payment of premiums on fruits and farm produce at the October meeting. This committee has since reported having secured an appropriation of $100, which sum will be increased by the society, and at the October meeting there will be a special fruit and farm produce exhibit, with liberal premiums. Entries are free to all, whether members of the society or not.

The program for the October meeting is as follows: "Country School Grounds," A. W. Bloomfield; "Winter Vegetables and How to Store Them," Ernst Mueller; "How to Make a Local Horticultural Society Go," Major Frank Holsinger. A special invitation is extended to all to attend the meeting, whether members of the society or not, and to make exhibits. All exhibits must be in place by 11 a. m. An effort will be made at that time to secure many new membes for the society.

At the September meeting Conrad Hartzell and the members present discussed buckwheat as a crop for this section. Mr. Hartzell is enthusiastic on the subject of buckwheat culture by fruit farmers, claiming that the reason fruit is often damaged by wasps, hornets, etc., at ripening time is because these insects have no other food supply at that time. If buckwheat is planted so it will bloom at the ripening season of grapes and peaches, Mr. Hartzell contends the fruit will be left unmolested by the insects, which prefer the buckwheat blooms. He told of his experiments in growing different sorts of buckwheat the past season, and said the Japanese wheat had given the best yield and had ripened the grain in sixty days after planting. Mr. Hartzell also contends that buckwheat does not impoverish the soil, as is claimed by some persons. He told of eight successive crops which he had known to be raised on same soil, and the last crop was the best of the eight.

Mrs. Maxwell's paper follows:

Every lady who keeps house thinks she knows all about preserving and canning fruit. Let her know much or or little, this does not hinder me from writing just as though she came here expecting to learn all about it. In the first place, one must have perfect fruit, plenty of sugar and a good preserving kettle. I prefer porcelain kettle; if you have not this an earthen milk crock is very good; indeed, some prefer it for certain things. This is immaterial, as every lady will use the vessel she most likes. In most preserves take pound for pound of sugar and fruit. I would say in preserving quince take as many sweet apples as quince, then as much sugar as both apples and quince. For plums, to prevent that strong rank taste and to make the skin tender, first scald in saleratus water, allowing a tablespoonful to four or five gallons of plums; as soon as the skin begins to break pour off the water and drain fruit, then weigh, allowing pound for pound of sugar and plums. For egg tomato preserves, three pounds of sugar to four of tomatoes; put in layers in stone crock; set in the oven moderately heated and cook for three hours; add two sliced lemons to each gallon. When lemons are used in preserving always add them after the fruit is cold. In preserving any light fruit, peaches apples, pears, etc., peel, then drop in clear water to prevent from turning dark.

"Now, a word about cherry preserves: After stoning them drain all juices off, cover fruit with clear water, stir thoroughly with hand, then squeeze all the water out that you can; weigh your fruit, and sugar equal parts. Now, don't say this is a great waste, but try it once and, my word for it, you will never again preserve cherries with the juice in as we used to do. The process I recommend makes the preserves lighter in color and takes away that 'cutthroat' taste that they have when made in the old way. To prevent jams, preserves, etc., from graining, a teaspoonful of cream of tartar must be added to every gallon; to preserve fruit jellies from mould cover the surface one-fourth of an inch deep with fine sugar.

"I will now say a word as to canning fruit. For most fruits I prefer the glass cans, except peaches and tomatoes (if tomatoes should be considered in this article). If you have used the can one year I would advise getting new rubbers; see that the cans and lids are thoroughly cleansed in hot water; cook fruit until done, add sugar to taste; this I think aids in preserving the fruit; put in cans and see that every particle of moisture is out of the can, and seal at once. Now as to preventing cans from breaking; I have tried many ways, and of late have had no trouble with jars breaking. I put a spoonful of fruit in jar, give it a shake, then fill."

Fruit Growing in Colorado.

Colorado is noted for its lofty mountain ranges and beautiful valleys. The Uncompahgre valley of Southwestern Colorado is undoubtedly the garden of the state. Its resources are illimitable. There are few places where can be found such a diversified range of industries. The excellent mountain pastures, and the large and quick growth of the alfalfa plant offer special inducements to the enterprising stockman. The grain

farmer receives ample return for labor expended. Wheat usually yields from 40 to 60 bushels per acre, and oats from 80 to 120. Corn can be grown, but the nights are too cool for its successful cultivation. The principal industry is fruit growing. The valley is the home of magnificent and prolific orchards. There are fewer off years for the fruit grower than in any fruit-producing district I have any information about either East or West. Indeed the Uncompahgre orchardist knows but little about off years. A part of our orchard is 15 years old, and has borne fruit for nine consecutive years; I mean by bearing fruit that it has produced a crop in proportion to its age each year. Our orchards must be seen to be appreciated. Jonathan, Ben Davis, Winesap, Missouri Pippin, White Winter Pearmain, Bailey Sweets and others are as a rule carrying all the trees will bear. Cherries were a fair crop. Peaches, especially the Elberta, promise a good crop. Pears, although badly blighted, will probably be half a crop. Grapevines are loaded. Strawberries were as usual a paying industry this year. Most growers realized a return of $500 to $800 per acre. There is activity in all lines, and money is plentiful.

I would say to our Eastern friends that while I firmly believe that there are but few places that offer the inducements to the homeseeker that are here held forth, there is but little cheap land to be had in the valley. Nevertheless, when we consider the wonderful productiveness of the soil, and the excellent market afforded by the surrounding mining districts, we may well consider land cheap as compared with other localities.

The climate is ideal. The winters are short and mild, and the summers cool. The rainfall is very light; we depend entirely upon irrigation for our water supply. The valley's future is bright. A gigantic tunnel is now under course of construction, which when completed will be three miles long, and through which will flow 1,000 second feet of Gunnison river water into the Uncompahgre valley. This water will reclaim and fully irrigate 160,000 acres of as fine fruit and farming land as can be found in the world. The state of Colorado magnanimously appropriated $25,000 with which to begin the enterprise, and now the United States government proposes to push the work to completion, the cost to be met from the sale of public land.

The country is comparatively new and the first settlers possessed but little of this world's goods, but the sure signs of prosperity are now witnessed on every hand in the wiping out of mortgages and in the erection of substantial and modern schoolhouses and homes.

The illustration herewith shows packing fruit in sheds of one of our progressive growers.

BARTON W. MARSH.
Montrose, Col.

If your subscription has expired, renew today. Look at the address slip on your paper to find when your time is out.

I Will Cure You of Rheumatism

Else No Money is Wanted

After 2,000 experiments, I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always at any stage, and forever.

I ask for no money. Simply write me a postal and I will send you an order on your nearest druggist for six bottles Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month and, if it succeeds, the cost is only $5.50. If it fails, I will pay your druggist myself.

I have no samples, because any medicine that can affect Rheumatism quickly must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take the risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. I will send you my book about Rheumatism, and an order for the medicine. Take it for a month, as it won't harm you anyway. If it fails, it is free, and I leave the decision with you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

A Good SPRAMOTOR is a Joy

A pretty good sprayer is an abomination, for it will not save, as you fondly hoped, a percentage of your crop.

With a SPRAMOTOR a farmer can improve his Fruit Crop 80 per cent; rid his stock of the annoyance of Horn Fly, thereby increasing the butter yield one-third. He can destroy the Wild Mustard (Charlock) in the growing grain without injuring the crop, and the improvement in the grain yield will more than repay the cost, and finally he can paint his buildings with SPRAMOTOR COLD WATER PAINT.

Full particulars, and 80-paged Copyrighted Treatise to all who mention this paper.

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100,000 TREES

FOR FALL AND SPRING PLANTING

Springfield (Nichols) Nurseries and Poultry Yards now offer to the planters a large stock of extra well grown stock of Apple, Peach, Pear, Cherry and Plum trees. Also small fruit plants and shade trees. We are headquarters for PAYNES LATE KEEPER and Ingram Apples. Have good stock of ELBERTA, CHAMPION, EMMA, SALWAY and general variety of peach. Prices and catalogues on application.

Correspondence solicited. Satisfaction guaranteed.

Barred Plymouth Rock breeding stock for sale from highest scoring pen in Mo., 186¾. Prices on application.

TIPPIN BROS., Proprietors, Nichols, Mo.

THE ALABAMA PEACH

IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD, were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries

also a success. Also general farm crops—Sugar Cane, Tobacco, Rice, etc.

300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

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ALABAMA LAND & DEVELOPMENT CO., MOBILE, ALA.

GEO. KILBORN, Secretary. HENRY FONDE, President.

Chattanooga Nurseries

SPECIALTIES

Peach, Apple, Pear, Cherry and Small Fruit Plants:
We are headquarters for one year and June Bud Peach. Including Elberta, Carman and all leading varieties. Before placing your order, write us, We will save you money.

D. W. HUNTER, Proprietor. CHATTANOOGA, TENN.

BUDDED APPLES PROPPAGATED FROM BEARING TREES, PER HUNDRED ..... $5 to $7

You can get anything you may want in Nursery Stock as GOOD and as CHEAP, as any Nursery can sell the same CLASS of TREES.

Fifty Thousand Elberta (The Queen)

GOOD GRADES CORRECT COUNTS SELECT STOCK

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Do You Need Apple Barrel Stock

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QUANTITY — QUALITY — QUICK SHIPMENTS.

Moral—Always Get Our Prices Before Buying.

The Kenoyer Blackberry.

This new blackberry originated on the fruit farm of F. L. Kenoyer near Independence, Kan. It is supposed to be a cross between the Early Harvest, from which it inherits its earliness in ripening and upright cane, and the Kittatinny, from which it derives the large size and fine quality of its berries. It has been tested in the grounds of the originator for five years and has proven as hardy as any variety grown in that locality, and perfectly free from fungous disease. There has never been a rusted plant of this variety. The canes are stocky and perfectly upright in growth. The berries are about twice as large as the Early Harvest and much better in flavor, equaling in quality most late sorts. The berry ripens a few days ahead of the Early Harvest, as early as the earliest dewberries, which makes it a most valuable acquisition for this Western country, as it is never headed off by the drouth. In the summer of 1901 the Kenoyer blackberry matured 95 per cent of its berries, while fully one-half of the Early Harvest berries dried up on the bushes and the Snyder failed to mature a single berry. This indicates the earliness of the Kenoyer variety, for nearly the full crop was matured before the drouth came on. The accompanying cut, which shows the exact size of the berries, is from a photograph taken on June 14, 1902, when the berries were at their best. See "ad" elsewhere in this paper, and for any additional information write the introducer.

F. L. KENOYER.
Independence, Kan.

Vinegar From Windfall Apples.

Apple trees in Oklahoma set very full of fruit this year and now the ground under the trees is almost covered with windfall apples. Most of this fruit will lie on the ground and rot and breed a good crop of apple worms for next year. These windfall apples will make good vinegar if gathered up and run through a cider mill and then the juice thus obtained allowed to ferment. The riper the apples the stronger the vinegar they will make. If the apples are very green a little sugar added to the cider before fermentation sets in will improve the quality of the vinegar very much. The cider should be placed in wooden or earthen vessels and set in the sun until fermentation has run its course. It then can be stored in the cellar or other convenient place for use.

Windfall apples in the experiment station orchard at Stillwater were gathered July 31 and made into cider. These apples made an average of two and one-half gallons of cider to the bushel. In thirty days the cider had finished fermentation and was a vinegar of fair quality. Rope peaches were gathered on the same date and the juice pressed from them and placed in jars for fermenting. In thirty days this was a vinegar of a better quality than could be found on the local market.

Apple Pomace for Cows.

The Vermont experiment station has just issued a bulletin (No. 96) which is of interest to fruit farmers all over the country. It is in regard to using apple pomace as feed for cows, and recommends that this waste from cider mills be so used. The station advises that apple pomace be put in the silo and fed during the coming winter as a supplement to corn silage or corn fodder.

The experience of four years with apple pomace silage at the Vermont station, using over twenty cows, is a unit in affirming the nearly equivalent—if not, indeed, quite equivalent—feeding values of apple pomace and corn silage. No undesirable results whatsoever have followed its use. Cows continuously and heartily fed have not shrunk, but on the contrary have held up their milk flow remarkably well. Neither does the milk nor the butter seem injured in any respect. A satisfactory ration used by the station has been hay, silage (one-third corn silage and two-thirds apple pomace silage by weight) and from four to eight pounds grain, the latter varying according to age, stage of lactation, etc. Fifteen pounds of pomace per cow has been fed daily with entire satisfaction. Inasmuch, however, as reports of severe shrinkage occurring coincident with the use of apple pomace are current, care and watchfulness are advised in feeding it at the outset.

Apple pomace needs no special care in ensiling. If leveled from time to time as put into the silo and left to itself uncovered and unweighted it does well.

Helpful Suggestions.

A. Wilder, Randalia, Ia., sends us two suggestions for benefit of our readers, as follows:

In using the old-fashioned dasher churn, if a lamp chimney is placed over the dasher there will be no splashing of cream on carpet, avoiding an unpleasant feature of the churning sometimes.

If a lath, with a crosspiece of lath at each end and one in the middle, is nailed to the wall back of the kitchen table, the housewife will have the best kind of a place to put her kitchen knives, spoons, etc., as they can be placed behind the lath, as can also plates, kettle covers, etc. It will save lots of steps for the housewife.

Mr. Wilder also sent a photograph showing the garden huckleberry, which he mentioned in these columns some time ago. He says it yields abundantly, and when cooked the fruit tastes much like the wild huckleberry. Unlike the latter, however, it is not good to eat raw and comes every year from seed.

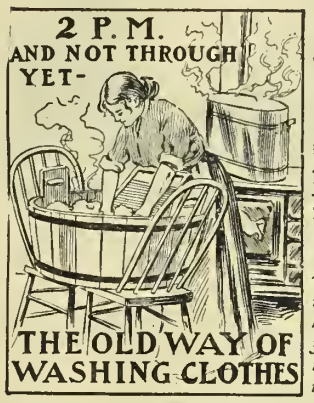
Variations of Ben Davis

I notice the Black Ben Davis is claiming a great deal of attention, and I will give my experience with it. I bought 25,000 apple trees of Alvin Dickson, Bentonville, Ark., and in the purchase I got several distinct varieties of Ben Davis, among them the regular Ben Davis, then Gano, then one called Benton County Beauty. While the apples are different, the trees are so very much alike that at first I could not tell them apart. But now the big Ben Davis trees have more stocky limbs, stiff leaves, and bear very large, coarse apples; all bore last year. What some call the Black Ben Davis is the nicest of all the various kinds. It is better in shape and color, and is also a younger bearer than the others. I think the fruit is more juicy, but it is more tender-skinned. From descriptions I have read, I think Black Ben Davis is the same that I have under name of Benton County Beauty. I have sent for the history of my trees, and may write again.

Columbus, Kan. G. S. SWEET.

The "1900" Ball-Bearing FAMILY WASHER FREE

Greatest Time, Labor and Expense Saver for the Home Ever Invented. Every Household Needs One.



No More Rubbing, Stooping, Boiling, or Wearing Out of Clothes. Monday's Washing no longer a Drudgery. Only Perfect Washer Made.

Sent Absolutely FREE *without advance payment or deposit of any kind. Freight paid, on 30 days' trial. May be returned free of expense if not satisfactory.*

The "1900" Ball-Bearing Washer is unquestionably the greatest labor-saving machine ever invented for family use. Entirely new principle. It is simplicity itself. It revolves on bicycle ball-bearings, making it by far the easiest running washer on the market. No strength required.

No more stooping, rubbing, boiling of clothes. Hot water and soap all that is needed. It will wash large quantities of clothes (no matter how soiled) perfectly clean in six minutes.

The "1900" Washer will wash collars and cuffs, laces, cambrics and the most delicate materials perfectly clean and positively without tearing or wearing them out in the slightest degree. It will wash blankets, bedspreads, carpets, etc., just as easily and thoroughly.

The "1900" Washer not only prevents wear and tear, but it saves soap, materials and a great deal of time and hard work. As shown in the illustrations, which are not at all exaggerated, with the "1900" Washer an ordinary wash may be finished by 9 A. M., while with the old-fashioned washboard it would take several hours longer and the work would be very much harder.

Absolute Proof from Users of the "1900" Washer

$1,000,000 will be paid to any one who can prove that any of the following letters are not genuine:

Verna P. O., Virginia, March 4, 1902.
Gentlemen—The "1900" Washer is the best cleanest and easiest washer that I have ever seen. Clothes need no hand-rubbing whatever, as the machine cleans them better than by hand. All that is necessary is to have the water ready and the machine properly used does the rest. It is undoubtedly the best washing machine on the market.
GEORGE M. COUNCILL, Postmaster.

Kansas City, Mo., May 14, 1902.
I have given your washer a fair trial. It is the best washer I ever saw. It has washed our heavy blankets with perfect ease. I washed them last spring and rubbed more than an hour and yet they had to go through again, but the "1900" Washer cleaned them thoroughly clean. We do our washing so quick and have no tired and wornout feeling as of old. I wish every lady had a washer.
MRS. J. L. BANNER, 4203 Troost Ave.

Golden Gate, Ills., May 6, 1902.
Please find enclosed remittance for your washer. I cannot praise it too high. I don't see how I have done without it before. No more backache. It is a Godsend to weak women. Please accept my heart-felt thanks to you, for it is the first free trial I ever sent for that was indeed free.
MRS. CARRIE STAFFORD.

Butler, N. J., October 22, 1901.
Your washer is the best and easiest ever made. I never saw its equal. One of my sons, who is an engineer, gets his overclothes very dirty. They have been washed by your "1900" Washer just as clean as when they were new. It washes everything perfectly clean. It runs so easy that my little granddaughter did the first two tubs full. It is a marvel and I would not part with it for $100. In two months it will pay for itself.
Respectfully,
MRS. MARTHA WITTY.

REMEMBER—YOU TAKE ABSOLUTELY NO RISK, INCUR NO EXPENSE OR OBLIGATION WHATEVER. The Washer is sent by us on 30 DAYS' TRIAL, freight prepaid going and coming, and positively without any advance or deposit of any kind.

For catalogue and full particulars of this liberal and absolutely genuine offer, address
"1900" WASHER CO.
69 C State St., Binghamton, N. Y.

Apple Barrels
Grape Baskets

We are prepared to furnish the foregoing in any quantity. Send list of your wants for prices. Stock of all kinds should be ordered early as possible.

Merchants Basket and Box Company
ST. JOSEPH, MISSOURI.

APPLE BARRELS

Cider Barrels and Kegs
Syrup Barrels and Kegs

Long Distance Phone 257

J. A. Schroer & Co., St. Joseph, Mo.

SPRAGUE CANNING MACHINERY COMPANY
SALES OFFICE:
802 MASONIC TEMPLE, CHICAGO, ILL.

Choicest Fruit and Ornamental Trees,
Shrubs, Plants, Bulbs, Seeds. 40 Acres Hardy Roses. 44 Greenhouses of Palms, Everblooming Roses, Ficus, Ferns, etc. Correspondence solicited. Catalogue Free. 49th Year. 1000 Acres.
THE STORRS & HARRISON CO., - PAINESVILLE, OHIO.

THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS

ST. JOSEPH, MISSOURI

Volume Twelve OCTOBER, 1902 Number Four

W. G. Campbell, Jr. .....General Manager
James M. Irvine ..... Managing Editor

Chicago Office .....405 Schiller Building
W. B. Leffingwell, Manager.

ADVERTISING RATE:
Per Agate Line ..... 15 cents
Fourteen lines to the inch.

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Unless otherwise ordered, subscription will commence with month following date of remittance, and continued until ordered stopped and arrearages paid. If you desire paper to stop when time is up, notify us. The letter "S" after date on your address tag signifies that paper will stop on that date. The address tag stands as a receipt for your remittance. No other receipt will be sent except on special request or with clubbing or premium offers.

In compiling a list of over Twenty Thousand subscribers it is an easy matter to make mistakes, but we guarantee fair treatment to everyone. If you find an error in your address tag, or do not receive paper promptly, write us and we will trace matter up at once.

Entered as Second-Class Matter in the Postoffice at St. Joseph, Missouri.

Reports from apple growers indicate that the crop reports which have been published in the Western Fruit-Grower each month have been of great value to both buyers and sellers of apples. The system is not perfect, by any means, but there can be no question that the work can be systematized so that one who has apples to sell will know about the quantity of fruit his product will compete with on the market. One difficulty this season has been to secure the co-operation of the growers. Some sections of the country were not represented, because of the fact that some persons to whom cards were sent did not return them. We believe it would be a good plan, for the present, at least, for each state horticultural society to appoint persons in different parts of the respective states to act as correspondents for furnishing just such reports as the Western Fruit-Grower has published. Of course these correspondents should be well-posted apple men, those who look at the business from a commercial standpoint. One fault which has been found with the government reports is that the apple estimate is made by the same men who make reports concerning wheat, corn and other crops, and as a consequence they are not as well posted on the commercial apple situation as the importance of the reports warrant. If we can secure the proper persons to make reports in every section next season, we feel safe in promising that our reports will be much more helpful. In this connection we wish to thank the many persons who have sent their reports regularly each month. We are sure our readers have appreciated their service. Let us all consider plans for improving these reports during the coming winter, and make next season's reports indispensable to everyone who has apples to sell or who wishes to buy.

The Western Fruit-Grower has received a number of letters asking when the committee appointed by the Missouri Horticultural Society to investigate the identity of the Gano and Black Ben Davis apples will submit its report. We are unable to say, but naturally presume it will make at least a preliminary report at the next meeting of the Missouri Society at Springfield, in December. The committee hoped to be able to report at that time. Until then, nothing will be known as to its report, for of course the committee will report to the organization which created it. In this issue of the Fruit-Grower, H. E. Van Deman, formerly pomologist of the Department of Agriculture—in fact, the first pomologist, we believe—tells of a trip he made to Arkansas to investigate the matter in controversy. Mr. Van Deman, of course, went as a private citizen interested in a matter which has attracted much attention, and his statement that Black Ben Davis and Gano are different apples is made public at this time because of the fact that he has previously stated, time and again, the apples were the same, after he had examined specimens of the fruit only. But for the official report of the committee appointed to investigate the matter we will have to wait until December.

The Western Fruit-Grower wishes to thank its readers for their co-operation in securing reports as to fruit prospects during the past season. While the reports were not all they should have been, and did not cover all the territory desired, we feel that they have been helpful, and we have letters from both buyers of apples and the growers of same complimenting us on the reports. They were appreciated by both buyers and growers. True, the latter contended the growers were holding their apples too high, and some growers charged the Western Fruit-Grower with having sold out to buyers, claiming that the prices of apples quoted were entirely too low. But all this is to be expected. We believe the estimates of fruit crops received by the Western Fruit-Grower were as nearly correct as they could have been made, and that no false estimates were used at any time. We believe, too, that the prices which have been named from time to time were about right. Next year we hope to have the system better arranged, and to this end we will appreciate suggestions from all interested in the apple business. Let us avoid the mistakes of this year, if possible.

The statement of C. C. Bell, Boonville, Mo., treasurer of the Misouri commission to the Buffalo and Charleston expositions, shows that of the $50,000 appropriated, part of the sum was returned to the treasury of the state. This is something unusual, we believe, and is worthy of commendation. Of the sum appropriated, $5,803.12 was not used, and in addition the original fixtures for the exhibits at the two expositions, which originally cost about $4,000, were sent to St. Louis to be used in 1904, if desired, making over $9,000 left unused from the appropriation. With such a showing as Missouri made at Buffalo and Charleston on little more than $40,000 actually used, what may we not expect from the state at St. Louis, for which over a million dollars will be available?

Those of our readers whose subscriptions have expired will receive a notice in a few days calling their attention to this fact, and we ask that everyone renew promptly. The Western Fruit-Grower is a very cheap publication at the rate of 50 cents a year, and we feel that no one who grows fruit can afford to be without it. When a notice is sent calling your attention to the fact that your subscription has expired, don't neglect the matter, but renew at once. And even if no notice is sent, look at the date on the address slip on your paper, as the date on which your pascription expires is there shown. Fifty cents is not much to any one person, yet if several thousand of our subscribers owe 50 cents apiece, the total is a considerable item to us. Remember this, and send your renewal at once. And if you can get five new subscribers under our special proposition of five new subscribers for a dollar, send the list of five. If you send ten new subscribers and $2.00 your own time will be advanced a year without charge.

We would again call attention to the meeting of apple growers to be held at St. Louis November 18 and 19, having as its object the forming of a national association of commercial apple growers. The experience of the past season has shown the weakness of the present system of marketing apples, in some respects, and the proposed organization can be made very profitable. Every apple grower who can attend should do so, and advise with others interested in the industry as to how conditions may be improved. The exhibit of apples will be a feature of the meeting and will likely be very fine.

Secretary Goodman of the Missouri State Horticultural Society has sent out circulars calling attention to the meeting of the society at Springfield in December, which is expected to be the best meeting yet held. The display of fruit will likely be very large and of excellent quality, the attendance will be the largest in the history of the organization, and altogether the meeting is expected to prove a record breaker. The Frisco railway will make a rate of one fare for the round trip, regardless of the number who attend the meeting, so there will be no trouble about railroad rates.

The subscription department of the Western Fruit-Grower reports the season as opening up in splendid shape. A good increase is shown over last year's record, and much more interest is manifest. We desire to add several thousand more names to our list before the first of the year, and to this end ask the co-operation of every reader of the Western Fruit-Grower. This paper expects to increase its circulation until it has 100,000 subscribers, and when that time comes the improvements which will have been made will make the paper indispensable to everyone who grows fruit. Will our readers help in this work? A great many of them are doing so now, but we want a more general response. This month the Western Fruit-Grower is sent to several thousand new subscribers, from the list of Farmer's Fruit Farmer, Pulaski, N. Y. The subscription list has been transferred to the Fruit-Grower, and all subscribers to the New York publication will receive this paper during the remainder of their subscription time. We desire these new members of the Fruit-Grower family to help in this work of building up a fruit paper which shall be the finest class publication in America. For their benefit, and for the benefit of other new subscribers, we wish to explain again our proposition to accept five or more new subscribers at 20 cents each, where five or more are sent at one time. Not less than five at this rate, and they must all be new subscribers. Many readers have already sent in clubs of five for $1.00; are we expecting too much to ask that all our readers do this? You will do a kindness to those who subscribe by giving them the benefit of a good fruit paper, and at the same time you will help to make possible many improvements in the Fruit-Grower. Now is the time to get these subscribers. Farmers have good crops, which are generally bringing good prices. Get up a list in your neighborhood and send it at once. We expect every reader to do his duty.

Strengthen the tired kidneys and purify the liver and bowels with a few doses of Prickly Ash Bitters. It is an admirable kidney tonic.

Kansas City Horse Show
Oct. 20-25th, 1902.

One fare plus $2.00 for the round trip via the Chicago Great Western Railway. Tickets on sale Oct. 18th to 25th, good returning Oct. 27th. For further information apply to H. I. Fay, Ticket Agent, St. Joseph, Mo.

Irrigated Fruit Lands in Colorado

Now is the time to secure a home in the fruit famed Uncompahgre valley.

For reasons that can be clearly given, land will greatly increase in value in a short time.

We have fruit and farming lands of every description. Also a few choice, well watered stock ranches.

The climate is ideal; good water, complete system of irrigation, productive soil, beautiful homes, and a good market for all products the year around.

For general information and particulars, write to the

Riverside Investment Co.
Box 72, Montrose, Colo.

Reference: The First National Bank of Montrose, and every business house in the city.

Do you know

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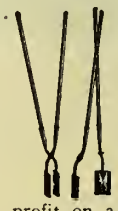

The American (Hoover's patent) is two spades connected by a T shaped bolt, making the only detachable post hole digger that will dig a square, three cornered or a square faced hole, and do it in less than one-half the time and with half the labor necessary with any other make of tools. To induce you to give it a trial we will sacrifice all profit on a limited number and sell them at 75c per digger. But can supply no dealers at this rate. J. S. BOLTON, Sole Manufacturer, MOLINE, ILL.

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out of 75,000 varieties produced in 25 years is now embodied in the New Catalogue.

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Any Fruit-Grower

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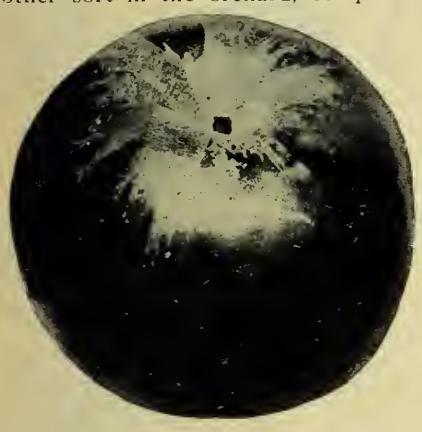
Nuts for Profit 158 pages; 60 illustrations; price 50c; testimonials free; Japan walnut seed, by mail, 25c per dozen; $1 per 100. J. R. PARRY, PARRY, N. J.

WANTED—10,000 Elberta June buds, 1 to 2 feet; cheap. T. J. Anderson, Temple, Ga.

The Virginia Beauty Apple.

We present herewith an illustration showing a Virginia Beauty apple, sample of which was sent up by the Titus Nursery, Nemaha, Neb. We referred to it last season as a new apple, for it seemed to be new in this section, but later were informed by a Virginia reader that he has known the variety for many years, as a most valuable sort, but few trees of it have been planted throughout the country. There seems no reason why this apple should not become popular, for it is of good size, fine color, a deep red, and of excellent quality. The tree is said to be healthy, hardy and a vigorous grower.

The Virginia Beauty was planted at Nemaha, Neb., many years ago by John Maxwell, who has fruited it for eighteen years. He says the variety commenced to bear as soon as any other sort in the orchard, composed



of Winesap, Ben Davis, Missouri Pippin, Jonathan, etc. Mr. Maxwell says that Virginia Beauty has continued to bear heavy annual crops, that trees are hardy and more thrifty and keep up their vigor better than any variety he has in his orchard. The bodies of the heavy limbs resemble Winesap very much, leaves are lighter and larger; new wood is heavy and very blunt at the tip.

The Titus Nursery, which has watched the Virginia Beauty apple for a number of years, has propagated a good stock of trees, for, while the variety was known a number of years ago, it has never been introduced to any great extent. W. A. Taylor, pomologist of the Department of Agriculture, investigated the Virginia Beauty, and learned that an old man named Stoneman grafted a number of apple trees for farmers in Wythe and Pulaski counties, Virginia, and among others grafted for John T. Sayers a number of trees of the Virginia Beauty fifty-five years ago. These trees are said to be still living and hardy.

This year samples of Virginia Beauty were sent to a number of horticulturists, some of whom have seen the variety at exhibitions before. Reports from these experts are very favorable to the Virginia Beauty, as indicated by the following reports:

W. A. Taylor, Pomologist, Department of Agriculture, says: "The success of Virginia Beauty in your section, as demonstrated by Mr. Master's test of it, is of special interest, and indicates that it is worthy of wider test in the West."

G. S. Christy, superintendent of Horticultural Hall, Nebraska State Fair, says: "Virginia Beauty attracted more attention than any other fruit in the hall."

Elliott Marshall, division freight agent, Burlington Route, who received second premium for best apple exhibit at St. Joseph (Mo.) fair, said, as soon as he saw Virginia Beauty apples, that they were the handsomest variety in the hall, and at once ordered 100 trees. Other fruit men at this fair admired the quality, size and beauty of this apple.

D. S. Lake, Shenandoah, says: "Virginia Beauty is a very smooth, pretty apple; seems to be firm and I would judge it to be a good keeper and shipper. It is surely a desirable variety, and as soon as it is generally known will be in good demand."

E. S. Welch, Shenandoah, Iowa, says: "They are splendid-looking apples, of fine color, good quality, and have every appearance of being a good shipping apple and long keeper. If the tree is hardy and productive, it is certainly a valuable variety that every orchardist should plant."

C. S. Scott, Virginia, who has the variety in fruiting, says: "Virginia Beauty is an early bearer—none more so, except Yellow Transparent, Bismarck, etc. Has been a bearer for three successive years after the first crop. Fruit bright red, free from scab; good quality and hangs on tree well."

W. G. Gano, Parkville, Mo., after whom the Gano apple was named, says: "The Virginia Beauty are certainly very nice and elegant in quality. The only thing I can see against it as a commercial apple might be its size when trees become old; the fruit may become undersize on old orchard trees." (Apples were picked from trees at least 28 years old.)

Silas Wilson, Atlantic, Iowa, says: 'The Virginia Beauty is certainly one of the most promising winter apples that I have seen. It is above medium size, very dark red, which makes it attractive, and of most excellent quality for a winter apple sampled at this season of the year. If this tree is productive and hardy, you have one of the most valuable commercial varieties in the country."

G. A. Marshall, ex-president Nebraska Horticultural Society, says: "The beautiful dark red color and uniformly large size of the Virginia Beauty, along with its good quality, hold it in favor wherever known. Nebraska is in need of just such an apple."

C. H. Barnard, secretary Nebraska Horticultural Society, says: "I have examined samples of the Virginia Beauty apple, and it is certainly a 'beauty.' I think it will certainly be one of the coming winter apples for our section of the country.

J. B. Wild & Bro., Sarcoxie, Mo., write: "As to our opinion of the Virginia Beauty as you have named it: We find the fruit of good shape, good color, and a mild sub-acid flavor; fruit of good size for market. We would judge, from general make-up of the apples sent us that the cross was with apples of the Limbertwig family and Winesap. Of course growth of tree would have to be taken into consideration."

M. J. Wragg, president Iowa State Horticultural Society, says: "I consider the Virginia Beauty one of the very best high quality winter apples that is grown."

The Titus Nursery, Nemaha, Neb., will send other testimonials and other information concerning the Virginia Beauty apple to those who ask for same.

E. C. Allen, Lone Jack, Mo., has sent twenty-nine new subscribers, but says he wants ten more coupons for other names. Continuing, Mr. Allen adds: "So Mr. Morlan objects to the word 'Western' in the title of the paper? Well, we like the name out here. I am trying the plan of banding my apple trees for codling moth, according to instructions given in June number of the Fruit-Grower.. I get from five to twenty pupae under each band every two weeks. The plan is a success, and I believe it beats spraying for this insect, although I spray also. I dislike spraying because of the time and labor required to filter lime so as not to clog nozzles. Cannot some effective formula be recommended that does not require lime to protect foliage? What has become of the Illinois station's experiments using arsenate of lead, which seemed to require no lime? What is the result of this year's work along this line? I notice that some of our fruit-growers recommend rye for young orchards. Well, I have had one experience with rye, and will not repeat it. I sowed rye in a young orchard last fall, and never knew until last April that rye would dry out land and make it hard, especially when the season is dry, as was the case last April. The rye sapped the earth of moisture until most of last year's growth on young peach trees was killed back for lack of nourishment. The soil seemed packed and hard to pulverize, when attempt was made to break it.. No more rye for me."

Regarding arsenate of lead, will say we believe it is generally recommended as an insecticide, as it is effective, remains in suspension in the barrel, and has other good qualities. But it costs a little more. However, more and more is it being used every year. Bowker Insecticide Co., Boston, Mass., put a preparation very much the same as arsenate of lead, which comes ready to mix and use, which is largely used in the East This preparation can be furnished from Western distributing stations, thus reducing freight charges.

Renew your subscription to-day.

The Lee's Summit Star Nurseries

RAMBLER ROSES

Let them cover the clothes line posts, climb the porches, fences and make a thing of beauty of unsightly corners. The whole family of Rambler Roses is worthy, interesting and beautiful. The CRIMSON RAMBLER is the rose for everybody. No Home should be without one and the more the merrier. Perfectly hardy, vigorous and—but what's the use, all have seen and admired it and we have only to remind you at the proper time—NOW! We have a fine lot of strong two-year-old plants, field grown at 25 cents. The DOROTHY PERKINS is our last addition to our collection of Ramblers and it is simply grand, all that has been said of it and more. We have them, too, and will sell a few strong two-year field grown plants at a special price of 40 cents, if you mention the Western Fruit-Grower.

Our Blue Catalogue will tell you more about Rambler Roses and of other items that we grow. It is your fault if you are without a copy.

Plant Cherry Trees Now. We tell why and how in a four-page circular.

The Dutch Bulbs are here and we are planting our beds. Let us send you also a copy of the Dutch Bulbs that you may know how to plant them and then we will sell you the Bulbs.

When this reaches you we will be shipping trees every way and if you say the word, we will ship some your way and then you will know for yourself.

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WANTED LADIES to solicit subscriptions for The American Farm and Orchard, a monthly journal devoted to every interest that its name suggests. Sample copy free. Address for terms,

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STRAWBERRY PLANTS

Our Catalogue tells all about how to grow Early STRAWBERRIES. It's free. Address

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The Oklahoma Peach Crop.

Peaches have been a full crop in 1902 in all parts of Oklahoma. The trees set full and the season was favorable for the full development of the crop. Good prices were received for all marketable fruit. Most of the trees were overcrowded and the fruit was generally small. Most of the peaches marketed were Elbertas, in fact there were more of this variety than all others combined. The general failure of the crop east and north of Oklahoma left a good market and many small peaches sold at a good price that would otherwise have rotted in the orchard. The peaches were smaller than usual, but the prices were generally good and the season has been a profitable one for the peach growers. Conditions will not always be so favorable and better peaches must be grown by most of the orchardists if the profits are to continue.

The conditions under which this crop has been produced will in part account for the size of the fruit. The preceding summer and winter were very dry and the trees started in to growth last spring in poor condition; many trees died after making a weak start. Good rains came early in the season and the continued wet spell prevented cultivation in many orchards. The weeds and grass got a good start and held their advantage throughout the season in most orchards. During the summer the regular drought got in its work and with the help of the weeds and grass took most of of the moisture and the trees could not grow large fruit and live.

There are three things that the orchardists can do to help the trees mature a crop of large fruit and only one of these things has been partially carried out in most of the orchards now fruiting in this country. The first is a thorough system of cultivation. The land should be well plowed in the spring and then given clean, shallow cultivation until the fruit is gathered. The land should then be planted to cow peas or some other crop that will make a good covering of manure to be turned under in the spring. The land must be kept in good condition and furnish plenty of food for the trees, and this can be done only by good cultivation and manuring. The addition of manure to the soil keeps up the fertility and helps to retain the moisture during the dry season.

The trees should be pruned each year. The work should be done in the winter and can then be done with little expense. The strong terminal shoots should be cut back and the top of the trees thinned and about one-half of last year's growth removed. The fruit is borne on the last season's growth and if this is kept in mind the pruning can do a great deal towards thinning the fruit. Cutting back the long terminal branches will keep the tree low and full of live, bearing wood. Better fruit will be borne on the new wood and it is also within easy reach of the pickers. It should be kept in mind that the trees are grown for fruit and not for wood and everything should be done that will make them use their strength in the production of first class fruit. Pruning is one of the necessary operations in peach growing and there is little danger of its being overdone.

Thinning is the third operation that would be of great benefit to the crops This has not been practiced to any extent in Oklohamo and the fruit has always been undersized for the want of it. The pruning, if well done, will do much to thin the fruit, but it will not complete the work. The fruit on most of the trees should be thinned to six inches between the fruits. If the land is well cultivated, the trees well pruned, and the fruit thinned, the quality and size of the fruit will be greatly improved and the amount of culls reduced to the minimum. All the wormy and blemished fruit can be removed when the thinning is done. The thinning should be done as soon as the fruit is one-fourth to one-half inch in diameter. This is a tedious process and comes with the rush of other farm work but the improved condition of the crop will pay

50 Different Bulbs all for 30c.

By mail with cultural directions, for garden or pots.

1 Golden Sacred Lily.
2 Tulips, 1 d'ble, 1 single.
2 Narcissus, "
3 Belgian Hyacinths.
3 Grape Hyacinths.
3 Giant Crocus.
3 Star of Bethlehem
3 Oxalis, 3 sorts.
3 Ixias, 3 sorts.
3 Sparaxis, 3 sorts.
3 Alliums, 3 sorts.
3 Triteleia, white star.
3 Satifraga, double white.
5 Giant Ranunculus.
5 Spanish Iris.
5 Freesias, mixed.

All different colors, and fine flowering hardy bulbs.
Also **Free** to all who apply, our elegant **Fall Catalogue** of Bulbs, Plants and Seeds, for Fall planting and Winter blooming Choicest Hyacinths, Tulips, Narcissus, Crocus, Lilies, Plants, Shrubs and Fruits.
New Winter flowering Plants and Bulbs, Crimson Daisy, Blue Coleus, Cardinal Freesia, Branching Tulip, etc.

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Make Your Spare Time Count by taking our **Correspondence Course** in **Horticulture** under **Prof. Liberty H. Bailey** of **Cornell University.** Treats of Vegetable Gardening, Fruit Growing, Floriculture and the Ornamentation of Grounds. We also offer a course in **Modern Agriculture** under **Prof. Brooks** of Mass. Agricultural College. Full **Commercial, Normal** and **Academic** departments. Tuition nominal. Text-books *Free* to our students. *Catalogue and particulars free. Write to-day.*

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ALSO
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BERRY PLANTS, Etc.
All at Half Agents' Prices.
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Free Largest and handsomest catalogue of birds, cages, etc., ever issued, mailed free if you mention this paper. Complete bird book 25 cents. Handsome brass cages $1.00 each.
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Currants, Gooseberries, Blackberries, Raspberries, Strawberries. Price List **FREE.**
Send 2c stamp for illustrated descriptive catalog.
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wanted to sell Rippley's 4 and 5 Gallon Compressed Air Sprayers, Large Orchard Sprayers, Spraying Solutions and Breeders Supplies. We can keep you busy the year around. Large 1902 catalog and terms free.
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Box 217. Grafton, Ill.

RIPPLEY'S Improved Combination **STEAM COOKERS** will cook 25 bushels of feed in 2 hours; heat water in stock tanks 250 feet away. Will heat dairy, hog and poultry houses. Made of boiler steel; can't blow up; no flues to rust or leak. PRICES $5.00 TO $45.00; 5 styles and 15 sizes. Sold under a guarantee. Endorsed by Experiment Stations. *Catalogue and prices free.*
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Holsinger's Department

A Visit to the Biggest Nursery in the United States.—"Where is that?" you ask. "At Louisiana, Mo." I answer. How do I know? I was there; I investigated the matter myself and for my own satisfaction. I had heard much of these nurseries. Stark Bros. had claimed much, and I confess I was a little incredulous as to their pretentions. So on last Monday I quietly took a train for Louisiana, and the next morning I was there, in a town of some 6,000 inhabitants. On inquiry I found that the nursery was located two miles out of town. How to get there was a problem. But later I learned that Stark Bros. had five wagons for the purpose of hauling their employes from town to the nurseries, and supposing the postoffice would likely be the meeting place, I went that way, and was not disappointed. Finding a number of young ladies and gentlemen in the city, I made my wants known to a young man with a lunch basket, and as a wagon drove up he said, "That is one of the Stark wagons; if you want to go out, come with me."

The wagon held twenty-one persons. There were three others equally as large, besides a smaller one for the mail matter. Among those in the wagon with me I found Mr. Crow, whom I had met before. He was very cordial in his welcome, and chided us for not advising him of our proposed visit.

On arriving at the grounds I was shown into the office and introduced to three members of the firm, who treated me most kindly. They are indeed gentlemen of a high order, intelligent and possessing great business qualifications, as their stupendous business proves. Here, under one roof, were gathered 93 people, as clerks, stenographers, bookkeepers, etc. All were very busy at their respective tasks. It was indeed a surprise to me. A business that in a dull season requires 93 persons as an office force is a tremendous affair, and I was convinced of this later in the day.

In one corner of the office building was the postoffice. The lady in charge informed me that the business of the firm with the government amounted to more than $11,000 last year, or more than one-half the entire receipts of the postoffice of a city of more than 6,000 inhabitants. The freight bills of the firm are still greater in proportion. The printing office adjoining the office building is larger and better equipped than are many of our newspaper plants in our country towns.

If the office was a surprise to me, I assure you that their packing sheds and grounds were still more so. So commodious are the packing sheds that whole trains of cars can be loaded or unloaded under cover at one time. The firm has its own cars, large as the furniture cars we see occasionally, which are used to bring the trees from the Starkdale nursery, 27 miles south, up to the packing sheds. Stark Bros. do a manufacturing business, too, of considerable proportions, making farming tools, especially the Stark tree digger.

Mr. William P. Stark drove me through the beautiful little city of Louisiana and out to the nurseries. Oh, the trees! MiMllions of them; and as handsome as I ever saw anywhere. Here a block of fifty acres of peaches, there another block of forty acres; the same of plums, and so on, block after block, until the eye tired of its vastness.

"What will you do with all these trees?" I asked. The answer was, "Our more than 5,000 salesmen will distribute them in every state and territory of the Union." Salesmen everywhere! No wonder that Stark Bros.' name is a household word. What house has not been visited by Stark salesmen?

The night was spent at the lovely home of William P. Stark. His wife made us indeed welcome, with that hospitality known to Southern women, whose refinement and culture is not surpassed. During our drive through the city I had commented on some of the pretty homes, and was informed whose they were, with one exception; having become more enthusiastic over a certain house, without receiving any comment in reply, I had almost forgotten it until after our drive, when we stopped in front of this beautiful home. "Here we will get out," said Mr. Stark. And then I recalled the beautiful home which I had admired in the morning's drive.

The next morning Messrs. William P. Stark and Judge Eugene Stark had planned a visit to the nurseries at Starkdale, 27 miles south of ouisiana. On our arrival a wagon was in waiting and we were rapidly shown this plant of some 3,000 acres. Apples by the hundreds of acres; millions of trees ready to be marketed. A large force was engaged in taking up many thousands for the fall trade. The stripping of the leaves from these early-dug trees is an expensive job, yet with the large force of employes the work was quickly done. I was told that there are often 700 people on the payrolls of the firm.

It is not alone in growing and marketing great quantities of nursery stock in which this firm excels, but in the propagation and distribution of new fruits they have done wonders. Witness their Gold Plum, Black Ben Davis, Delicious, Champion and other apples. And now comes their new grape, the Stark-Star. This originated with Prof. Joseph Bachman, Altus, Ark., and promises to be a revelation among grapes. Since my return home I have met Colonel J. C. Evans, of the committee appointed to investigate Black Ben Davis-Gano controversy, who has seen the new grape. By the way, he asures me that Black Ben Davis is a distinct variety from Gano, having originated in Arkansas. While in Arkansas he visited the vineyard of Mr. Bachman and saw the new grape, which he pronounces "the finest grape ever introduced."

Altogether, my trip to Stark Bros.' nursery was a very pleasant one. I saw the biggest nursery plant I have ever seen, and learned something of the management of the finest business system I have ever hard of.

Ho! for Washington!—Should my department be somewhat curtailed in this issue it will be because of the fact that the martial spirit in me has been aroused. The encampment at Washington, G. A. R., meets next week. The desire to meet old friends, the companions of that terrible period when this country was engulfed in the most terrible war of all history; to meet the friends who stood shoulder to shoulder with me and once again renew comradeships that the veteran only can understand and appreciate, causes me to undertake this long journey via Memphis, Birmingham, Lynchburg, et al, to see the southern route to the East—one I have never yet taken. My campaigning was limited to a small area during the war. No "Marching Through Georgia" for me, but camping along the streams of Virginia, vibrating between Washington and Richmond—sometimes flushed with the shouts of victory, anon crushed hopes, by disastrous defeat, flying for life—aye! possibly helpless upon the field with the life blood flowing from terrible wounds, longing for mother, home, and that peace that to us seemed would never come—but which, thank God, we do enjoy. Our country, why speak of it? It is patent to all. The greatest, best, most glorious ever vouchsafed to man. Do you wonder then, that the men who made this possible should occasionally desire to meet, celebrate and renew the fraternal ties of those stirring times? Alas! These meetings will soon be done. The veterans are going—soon all will

Fortunes in Growing Fruit and Vegetables

is the name of a handsome little booklet recently issued by the Cotton Belt Route. It tells how growers realize from $150 to $300 an acre, raising early fruits and vegetables, along the Cotton Belt Route.

COTTON BELT ROUTE

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TREES

FOR FALL OF 1902 AND SPRING OF 1903

We offer a large and choice line of General Nursery Stock.
Special attention is called to the following:
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F. S. PHOENIX, Bloomington, Ill.

Choice Nursery Stock

Carefully grown and carefully dug. Fifty varieties of Apple, good assortment of Pear and Peach. Send for list.

L. F. DINTELMANN
BELLEVILLE, ILL.

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We wish to call your attention to the fact that we have a fine lot of one year old CHERRY TREES for Fall delivery. We ask particularly the attention of planters to our CHERRY. They will suit you we know and will give better satisfaction than the two-year-old trees. They are not so tall as the two-year trees, but they are thrifty, stocky, well rooted from three to five feet high. We also offer Peach, Apple and a general line of nursery stock.

H. M. SIMPSON & SONS
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850,000 GRAPE VINES

100 Varieties. Also Small Fruits, Trees, &c. Best rooted stock. Genuine, cheap. 2 sample vines mailed for 10c. Descriptive price-list free. LEWIS ROESCH, Fredonia, N. Y.

GRINDS AND CRUSHES Ear and Shelled Corn, Oats, Rye, Etc.

to a medium degree of fineness for feeding purposes. Crusher roll crushes the ears and at end of crusher we place either fine or coarse grinding plates. **FINE PLATES** are for ear corn, shelled corn, oats, rye and other small grain, where a good medium degree of feed is wanted. **COARSE PLATES** are for ear or shelled corn, where coarse chop feed is wanted and for **Crushing Ear Corn** to prepare it for a French burr or any other millnot having cob crusher. **Crushes 25 bu. an hour.** Can be run with 1 to 15 h. p. or power wind mill. Is strong and durable, made of steel and iron. Hopper holds full sack of corn. **Latest thing out, revolutionizes ear corn proposition.** Send for free catalog giving full description.

$15 for a Crusher and Grinder

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The Shenandoah Nurseries

Offer one of the largest and most complete lines of Nursery Stock in the United States.

Our Ornamental blocks are fine. Our Forest Tree Seedlings and Osage Orange are excellent. Large blocks of

Apple, Pear, Peach, Plum, Cherry Gooseberry and Currants

APPLE SEEDLINGS—Any grade desired, straight or branched roots.
APPLE GRAFTS—Made to order on piece or whole roots.
Send list of your wants for prices. Personal inspection invited. Address

D. S. LAKE, Proprietor SHENANDOAH, IOWA

Commercial Orchard

MISSING LINK APPLE CO.

NURSERYMEN CLAYTON, ILL

Successful commercial orcharding depends upon the following factors:

First—Trees must be true to name.

Second—Trees must be grown on Nature's plans.

Third—Trees must be properly dug and packed, so as not to lose their vitality.

Fourth—Varieties must be adapted to soil and climate before congenial environments exist.

Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.

Sixth—There must be a mutual consideration of each other's interests between nurseryman and planter.

Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees. You are especially invited to call and see our stock and examine our bearing trees.

Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.

Agents wanted in every locality. Call on or write us for prices.

Yours for mutual pleasant and profitable business,

be gone. Going, "One by one, one by one."

FRANK HOLSINGER.

The Missouri Valley Meeting.

The September meeting of the Missouri Valley Horticultural Society was one of the best of the season. It was held at the home of Marshall Chandler, west of Argentine, and was well attended, the dinner was delightful, the program was carried out in full, and altogether the affair was a great success. Not the least interesting feature of the meeting was the strawberry fields of Mr. Chandler. A year or so ago the farm was all in timber, which has been removed, stumps and all, save a beautiful grove of walnut and other native trees, which was left about a beautiful building site.

Mr. Chandler last spring had a small stock of strawberry plants, and greatly enlarged his planting at that time. He now has about seven acres of plants, comprising a planting which those present declared the best they had ever seen. The plants are all on new ground, as stated, and there is hardly a weed in the entire field. The plants have made an excellent growth during the season and are strong and vigorous, with no rust or disease of any kind, nor any insects. The field is certainly a most excellent one, and Mr. Chandler received the congratulations of all the members.

After two tablefuls—and by tableful is meant about 50 persons—had done justice to the dinner, the meeting was called to order by Vice President George Holsinger. He called on Mr. S. J. Hare, superintendent of Kansas City's park system, who read an excellent paper on "Our Home Grounds—Some Landscape Aids in Beautifying Them." Mr. Hare said that as landscape gardeners we must go to Nature for our best lessons, and for our best effects. He made a special plea for water scenes in ornamenting home grounds, and urged that if a fountain is used the same should be a water scene—nothing more. Depend on the water for the effect, and not on architectural iron work, stone work or anything of that sort.

The speaker made a plea for more parks and driveways and urged that the many forms of leaves and flowers should be used in the schools as models for drawing, and urged the planting of school grounds to make them more attractive.

Mr. Hare said while he favored planting along the streets and roadways, he did not favor the wanton destruction of old trees just because they are a few inches, or even a few feet, out of line. Preserve the natural lines, and the effect will be much better.

Mrs. Asa Chandler read an interesting paper on "Animals on the Farm." and Mrs. A. Key contributed a paper which was left over from a former meeting. This lady has a very rich vein of humor, and her paper on "The Revelations of the Back Yard" was appreciated. She had an amusing picture of many back yards filled with tomato cans, cinders, refuse of all kinds, making the place unattractive and unsanitary, and paid tribute to the society of women in Kansas City which for several years has tried to interest the children of the city in the improvement of their homes, and particularly the back yards.

Mrs. Key made a plea for our native flowers along with the more pretentious ones from the florists, and closed with the following verse:

The rose may bloom for England, the lily for France unfold,
Ireland may honor the shamrock, and Scotland her thistle bold,
But the shield of the great Republic, the glory of the West,
Shall bear a stalk of the tasseled corn, of all her wealth the best.
Arbutus and the golden rod the heart of the North may cheer,
And the mountain laurel from Maryland its royal clusters rear,
And the Jasmine and magnolia the crest of the South adorn,
But the wide Republic's emblem is the Kansas golden corn.

Dr. J. C. Whitten, of the University of Missouri, just returned from his year's work at the University of Halle, Germany, made his first public appearance since his return at this meeting, and his many friends congratulated him on the honors he had won and welcomed him home. He was on the program for a talk on "Spraying," and his address was along general lines. He referred in the beginning to the discovery of the merits of Bordeaux mixture, an accident near Bordeaux, France, and also referred to the work of spraying as carried on in Germany. He said the Germans are most thorough and painstaking in their work of spraying, yet they use about the same methods and appliances that they did when the practice was first carried on. None of the improved pumps, nozzles and other appliances which the Americans know are used to any great extent in the Old World.

"My observations for a number of years," said Dr. Whitten, "have led me to believe that we are not early enough in our spraying. Just when is the proper time to begin spraying is a hard matter to determine, for, obviously, it must be just a little before the time when the pest which is to be fought appears. I mean by this that the right time to begin to spray for fungous diseases is just before the spores find lodgment on the leaf or fruit; the right time to begin spray for canker worms in the spring is just before the young worms hatch out. Starting this early, if we can determine just when the right time has arrived, there will be little trouble. If the work is delayed, the fight is harder. In fighting the canker worm, for instance, we all know how this is. If the poison is applied when the worms are very small, just hatched out, they are easily killed. If the application is delayed until the insects are pretty well grown, then they can hunt over the leaves and find spots where there is no poisonn, and here they will feed and be safe.

"While my remarks shall be along general lines," continued the speaker, "I want to make one other suggestion, and that is in regard to nozzles. There is too little attention paid to the nozzles used for spraying, and herein is the cause of many failures. We all know that for best results the mixture must be applied in the form of a fine mist, but we do not all stop to consider that a nozzle which makes a mist a few inches from the nozzle will hardly apply the mixture at all on a high tree, or that a nozzle which breaks the stream into a fine mist at the height of a big apple tree will throw a solid stream a few inches from the nozzle. It may be stated as a general rule that the man who wants to have the best success in his spraying operations should have several nozzles, and not depend on only one pattern for spraying high trees and also for spraying grape vines or low-growing plants."

Dr. Whitten was asked concerning the dust spray, and said that in his absence during the past year Prof. Howard had conducted some experiments with the dust spray, and had been pleased with the progress made. The dust had been used on some plats alongside of others which were sprayed with liquid and some which were left unsprayed. The fruit from the liquid-sprayed trees was 72 per cent perfect, that from the dust-sprayed trees was 50 per cent perfect, and that left unsprayed was 36 per cent perfect. The liquid spray was applied three times,

WEST MICHIGAN TREES

are healthy and hardy. Buds cut from bearing trees insure stock true to name. 913 acres—two million trees—apple, peach cherry, plum, pear and quince. Ornamental trees and shrubs. Order direct at wholesale prices. Beautifully illustrated catalogue sent free. Write to-day.

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HARDY Nursery Stock.

To obtain new customers we will send at the proper time this fall 1 beautiful Flowering Tree and 1 Russian Flowering Shrub to first 10,000 property owners who answer this adv. and send two 2c stamps to help pay postage. Catalog free for the asking. Our Booklet "The Story of a Tree" will save you dollars. Write to-day.

THE GARDNER NURSERY CO., Box 132, Osage, Ia.

Fruit Tree Notice!

For Standard, thrifty, trees, fruit and ornamental, look to our old reliable nurseries. Finest and most varied stocks, including all hardy varieties, true to name, clean, healthy.

Get Ready for Fall Planting.

You may not find time in the spring. You will lose fewer trees and gain nearly a year's growth. We have just what you want. Send for Free Catalogue.

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WHITMAN'S PATENT AMERICUS

The Best Cider and Wine Mill made. Will make 20 per cent. more cider than any other. Geared outside. Perfectly Adjustable. Prices as low as any first-class mill. Mfrs. of Hay Presses, Horse Powers, Corn Shellers, Feed Cutters, Feed Mills, etc. Send for circulars.

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Agents Wanted To sell Nursery Stock. We pay 40 per cent to good competent men. HART PIONEER NURSERIES, Ft. Scott, Kansas.

Otwell's TREE PAINT

for 7 years has grown in favor. Millions of trees saved from rabbits in winter and borers in summer. It costs nothing for circulars and terms to agents. The best thing in the world for fruit trees, and you will say so too.

BEFORE AND AFTER

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Farmers' Handy Wagon

With 4-Inch Tire Steel Wheels

only $21.95

Low and handy. Saves labor. Wide tires, avoid cutting farm into ruts. Will hold up any two-horse load. We also furnish Steel Wheels to fit any axle. Any size wheel, any width of tire. Catalogue free.

Address Empire Manufacturing Co. Quincy, Ill.

Mention Western Fruit-Grower when you answer advertisements.

Cheaper than Cornstalks

Protect Your Trees with Veneered Tree Protectors

A positive protection against rabbits, mice, sun-scald, hot winds and barking by careless cultivation. Will last for years. Send for circulars.

$1 per 100, $6 per 1,000

10 in. wide, 20 in. long.

Hart Pioneer Nurseries FORT SCOTT, KAN.

Wholesale Growers of Nursery Stock.

SEND TO HOLSINGER BROS. for prices on RASPBERRY STRAWBERRY PLANTS

CUMBERLAND RASPBERRIES

brought 50 cents crate more than any other. We have plenty of them. Also Kansas, Gregg and Hopkins. Twenty leading varieties of Strawberries, and other small fruits.

HOLSINGER BROS. ROSEDALE, KANSAS.

Platt's Commercial College

Ballinger Bldg., 7th and Edmond ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

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BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.

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Dealer in TREE and SHRUB SEEDS

Tree Seedlings in large and small lots. CATALPAS, RUSSIAN MULBERRY, BLACK LOCUST AND MANY OTHER FINE AND ORNAMENTAL VARIETIES

Would like to correspond with any one who could supply good fresh tree and shrub seeds this fall.

LACON NURSERY AND FRUIT FARM

APPLE ROOT GRAFTS

Best and Cheapest. Whole and Piece Root, 100 varieties; also Pear, Plum and Cherry grafts. Get our prices now. APPLE TREES, 1 and 2 year sizes, 2 to 3 ft. and larger, good assortment. CHERRY TREES, mainly Early Richmond, 2 to 3 ft. and 3 to 4 ft. Cheap for early fall shipment.

H. E. ROWLEY, Lacon, Illinois.

100,000 Apple Trees (2 and 3 Yrs.)

50,000 Concord Grapes (1 and 2 Yrs.)

Besides a large and complete stock of all kinds of fruits, berries, etc. Send me your list of wants for cheap prices.

Hawkeye Nurseries

W. H. KAUFFMAN, Prop., Stratford, Iowa.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop. PAW PAW, MICH

and the dust the same number. Results show progress, and Dr. Whitten looks for still greater improvement in the dust process.

Secretary Goodman was present, having come from his extensive orchards in the southwest part of the state to attend the meeting, and he told of the use of dust in their orchards this season. He said they had used a number of dust sprayers, principally the Jumbo, made by Leggett & Bro., of New York. Last year he was cautious in his statements, not desiring to recommend dust spray until he had tried the process further. But this year he is free to say he can recommend the dust spray very warmly. He said they had left some trees unsprayed, and there was a difference of 50 per cent in the quality of fruit from the sprayed and the unsprayed trees. The trees were dusted three times, and the saving in time, labor and expense was very great. Results were better this year than last, and Mr. Goodman feels much encouraged.

Mr. Goodman is very careful and conservative in all his statements, but this season is more warranted in testifying in favor of the dust process for spraying apple trees.

Mr. Goodman also reported briefly on summer apples and said he did not know of a time when one would feel as safe in planting good summer varieties as at the present time. He specially commended Maiden Blush as a profitable sort where they are planted in quantities large enough to furnish carlot shipments.

Major Holsinger made a plea for the Wealthy, but Mr. Goodman said that while Wealthy is good in some sections it is not as good as Maiden Blush in others, and he rather preferred the last-named sort. The Wealthy does better, perhaps, north of the Missouri river, and the Maiden Blush south of it.

The exhibit of apples and pears was good, some especially fine pears being shown. Mr. Goodman had some specimens of Jonathan, Gano, Winesap and other apples from his South Missouri orchards which were very fine, and there were other exhibitors with some splendid apples. At the conclusion of the meeting it was voted to send the display of fruit to Washington, D. C., where the Kansas people were going to make an exhibit of their products during the G. A. R. reunion. The exhibit is to be labeled as coming from the Missouri Valley Society.

After attending a meeting of the Missouri Valley Society one cannot fail of being impressed with the value of the society. At the meeting last month there were a number of members present from Parkville, Mo.: Messrs. Sparks, Williams, Chedester and others were there from Gashland, Mo.; Randolph, Mo., was represented by Mr. and Mrs. Asa Chandler; Rosedale, Kan., by Mr. Gerber, Espenlaub and wife, the Holsinger family, and others; Col. Evans and wife, from Harlem; representatives were there from Edwardsville, Kansas City, Kan., Kansas City, Mo., and a number of other points which we did not learn. All members of the society are busy people—all fruit farmers are busy people—yet they take one day each month for the meeting and bring their families to meet their neighbors. That the time is well spent is proven by the many years which they have pursued this plan. We present herewith an illustration showing some of those present.

The October meeting will be held October 18, at Edwardsville, Kan., and it, too, will be a good one, for the Edwardsville meeting is always one of the very best of the year.

J. M. I.

The Apple Growers' Congress.

On November 18 and 19, as previously announced, the commercial apple growers of the country will hold a meeting at St. Louis to form a National Apple Growers' Congress, having for its objects the improvement of the standard of orcharding throughout the country and to secure reports as to the apple crop each season, which will give the growers an intelligent idea of prices which should prevail.

A meeting of the executive committee of the temporary organization was held in St. Louis on October 10, at which a majority of the members were present. At this meeting the sub-committee on by-laws reported a constitution and by-laws for the proposed organization, which, with slight amendments, were adopted as a whole and will be submitted next month to the growers present. The by-laws provide a membership fee of $3, and this must be paid before one is entitled to vote in the organization. The temporary secretary, T. C. Wilson, Hannibal, Mo., is authorized to receipt for the membership fee at any time.

The committee on arrangements reported progress and W. R. Wilkinson of St. Louis was added to the committee and it will have everything in readiness for the meeting next month.

The committee on program reported outline of program for the first meeting, which is as follows:

First day, November 18—Organization; paper on "Soils," with discussion; paper on "Planting and Cultivation of an Orchard During First Five Years;" paper on "Care and Cultivation After Five Years," with discussion following each paper.

Second day, November 19—Paper on "Fungi;" paper on "Insects;" paper on "Packing and Marketing of Apples," discussion to follow each paper.

Reports indicate that the first meeting of the Apple Growers' Congress will be well attended, and in connection with the meeting there will be a fine display of fruit. All orchardists everywhere are urged to attend.

Some Large Fruit.

During the past month we have received two boxes of fruit from Colorado which illustrate the quality of fruit which members of the Fruit-Grower family produce there. J. H. Crowley, Rock Ford, Colo., sent us a box containing 24 Elberta peaches which were about the finest of this variety we have ever seen. The fruit was large, and the flavor seemed to be better than peaches of the same variety which are grown without irrigation. Mr. Crowley is a good grower, as is indicated by communications the Fruit-Grower has published from him, and certainly should have no trouble in marketing such fruit as he sent us.

The second box came from D. L. Beezley, Paonia, Colo., whose consignment consisted of peaches and pears. The Elbertas were past their season and would not hold up for the long trip. The pears, however, are very large. Mr. Beezley says the pear is a seedling and will not be ripe until spring.

Cleanse the liver and bowels, and regulate the system by using Prickly Ash Bitters. It creates and sustains energy.

Homeseekers' Excursions.

Homeseekers tickets to nearly all points on sale at low rates by Chicago Great Western Railway on first and third Tuesday of each month, June to October, inclusive. For particulars apply to H. I. Fay, Ticket Agent, St. Joseph, Mo.

Missouri Christian Endeavor Union Sedalia, Mo., Oct. 23-26, 1902.

One fare and a third for the round trip via Chicago Great Western Railway. Tickets on sale Oct. 22-24; good to return Oct. 27th. For further information, apply to H. I. Fay, Ticket Agent, St. Joseph, Mo.

LOW COLONIAL RATES.

The Western Fruit-Grower has received a circular calling attention to the low colonist rates which the 'Frisco system has made to the Ozark country and to the mining section of the Southwest. Tickets can be bought one way at one-half the regular rates, plus $2, and are on sale October 21, November 4 and 18, December 2 and 16, January 6 and 20, February 3 and 17, March 3 and 17, and April 21. Full particulars can be furnished by any local ticket agent of the 'Frisco system, or will be sent by Bryan Snyder, Passenger Traffic Manager, 'Frisco System, St. Louis, Mo. These low rates offer an exceptionally good opportunity to visit the fruit sections and the mining districts of the Ozark country.

POST HOLE DIGGERS.

In this issue appears the ad of J. S. Bolton, Moline, Ill., who advertises a post hole digger at a low price. This gentleman has two styles of diggers, the Hoover patent, advertised this month, and the Ryan self-cleaning digger. The Western Fruit-Grower has used this last named pattern, and it gives excellent satisfaction.

THE WICHITA NURSERY.

W. F. Schell, manager of the Wichita Nursery, has an ad in this issue, and would particularly like to hear from all our readers who want anything in his line. He claims his stock this season is very fine, in good assortment, and he expects to do a big business with readers of the Western Fruit-Grower. See his ad and write him.

$1,200 A YEAR FOR LIFE

Secured by Small Monthly Payments

All the crude rubber that comes to the markets of the world to-day is gathered from wild rubber trees scattered here and there through the tropical forests. The ignorant and improvident natives who gather it to-day almost invariably tap to death the tree which brings them their golden harvest, hence the price of crude rubber has doubled in ten years, and the question of the world's supply of rubber for the future becomes of vast moment.

The reproduction of these rubber trees in their own soil and climate is just as simple and just as sure as the growing of maple trees in our own, and the scientific, commercial orcharding of rubber is the newest and most profitable development in the world's progress.

We are changing the production of Crude Rubber from the primitive and destructive method heretofore employed, to the most scientific and economic plan known to modern forestry. No industry ever underwent so radical a development as we are now engaged in without making immensely wealthy those who accomplished the change.

We have 6,175 acres of land in the State of Chiapas, the most fertile soil in Mexico, and we aare developing this land into a commercial rubber orchard under the most successful conditions and plans known to scientific forestry. We are selling shares in this plantation, each representing an undivided interest equivalent to an acre of land.

Each acre as soon as it is sold is cleared and planted to 600 rubber trees; 400 of these are tapped to death before maturity, leaving at the end of the development period, 200 trees, the normal number per acre for permanent yield. The advantage of this method is that, by beginning the tapping thus early, dividends begin also in the same year.

Any one can own such shares, or acres, by paying for them in small monthly installments. Supposing you buy only five shares, or acres. You pay $20 a month for 12 months, then $10 to $25 a month for a limited period, until you have paid the full price of the shares in the present series—$264 each; but during the period of these payments, you share; hence, the actual cost of your shares, or will have received dividends amounting to $210 per acres, is only $54 each, and you own real estate then worth at least $2,500, and from the maturity period onward as long as you live, your five acres, or shares, will yield you a yearly income of $1,200. This is a most conservative estimate (based on Government reports of the United States and Great Britain, the most reliable sources of information in the world), for 200 trees per acre, and figuring them as yielding each only two pounds of crude rubber per year, a total of 400 pounds at 60 cents net per pound. Of course if you buy 10 shares, your income would be $2,400 yearly, or better still 25 shares, which will yield $6,000 a year.

Crude Rubber is today worth twice as much as it was a few years ago, and for twenty-five years the supply has not equalled the demand. Every industry, every branch of science is daily finding new uses for which it is adapted. You cannot imagine a substitute for it.

Every possible safeguard surrounds this investment. The State Street Trust Co., of Boston, acts as trustee for the shareholders throughout. It holds the title to the property. It holds the money paid in for shares and this money can only be drawn out upon evidence that the property is being developed as agreed with you. You are fully protected against loss in case of lapse of payments, or in case of death. You are granted a suspension of payments for 90 days, at any time you wish. We agree to loan you money on your shares. In fact, if there is any safeguard you desire you have only to ask for it.

Five acres or shares, in our Rubber Orchard planted to 1000 Rubber trees will at maturity yield you a sure and certain income of $100 a month for more years than you can possibly live. Your dividends average 25 per cent during the period of small monthly payments.

Here is a safe, conservative, and permanent investment in an industry new enough to be immensely profitable, yet old enough to have lost all element of risk.

If we can prove to you that five shares in this investment, paid for in small monthly installments, will bring you an average return of TWENTY-FIVE PER CENT ON YOUR MONEY DURING THE PERIOD OF PAYMENT, and will then bring you $100 A MONTH FOR MORE THAN A LIFETIME, we could not keep you out. Let us prove prove it to you; let us answer your questions; we like them. We already have hundreds of shareholders scattered through 20 states, who have investigated and invested. We would like to send you the list of them. Doubtless some of them are known to you. Our literature explains our plan fully and concisely, and proves every statement. It will be sent to you immediately on request.

Our Shares are selling at $24 above par right now, and are selling fast. Only a few hundred remain in the present series. When these are sold the price advances again—the 3d advance within a few months This means quick action if you wish to join us.

MUTUAL RUBBER PRODUCTION CO.

Western Office, 521 Ridge Bldg.
KANSAS CITY, MO.

Reports Concerning Apples

Herewith we submit reports received from our correspondents just before the October number goes to press. The reports indicate the reports heretofore made were generally about right, and the reports of prices indicate that the lower prices which have ruled in some sections is in a measure due to the lack of buyers there.

In sending out our cards this month we asked each correspondent if the reports published by the Western Fruit-Grower had helped the growers, and every reply was that reports have been very helpful, with one exception, one grower reporting there were not enough of the reports. This encourages us to improve the service for next season. Our reports this month follow:

Mammoth Springs, Ark.—Apple crop is less than we anticipated; rotted badly. Sales were made at $1.37½, which we were offered for our crop. Quality mostly fine.

Bentonville, Ark.—Crop is rather less than estimated. At packing time fruit sells for $1.40 for Ben Davis, $1.80 for M. B. Twig and Arkansas Black. Codlin moth did much damage, even where sprayed; little bitter rot.—I. B. L.

Paonia, Colo.—Crop better than expected, and has been mostly sold. Price is $1 per bushel box on board cars. Possibly one-sixth the crop of the valley will go into storage.

Jerseyville, Ill.—Crop about as estimated. Some growers have sold, others are holding their fruit; price about $1.50 barrel on tree.—W. E. C.

Quincy, Ill.—Crop less than expected. Growers are selling; fruit brings $1 to $1.25 barrel for Ben Davis, taking No. 1s and 2s.—C. H. W.

Centralia, Ill.—Crops have improved of late. Growers selling mostly at $1.65 barreled. Quality better than for years.—W. S. P.

Vincennes, Ind.—Too early to tell about total crop; not done picking. Growers selling at $1.25 to $1.50 per barrel, picked down. Quality good to fancy. We had 40 Winesap trees, including five small trees, from which we picked 175 barrels of fruit. A grower near us took 36 bushels from one Winesap tree.—H. M. S.

Lafayette, Ind.—Crop about as estimated. Growers mostly selling at $1.50 to $3 per barrel.—J. T.

Hamburg, Iowa.—Crop is not over half full crop. Growers are selling fruit, as a rule, at $1.25 to $1.50 barrel. Quality better than for several years.—A. A. S.

Glenwood, Iowa.—Crop about as estimated. Some growers selling, some storing. Fruit selling at $1.50 to $2 barrel. Quality not as good as we had expected earlier in the season.—J. P. J.

Atchison, Kan.—Crop is larger than estimated. Growers as a rule are selling, price $1.50 barrel. Quality good. Growers are more encouraged this year than usual.—O. H. P.

Hutchinson, Kan.—Crop much less than expected, on account of dropping. Growers are divided, some selling, some storing; prices are $2.25 barrel for No. 1 fruit, loose; $1.80 barrel for No. 2, loose. In reports of prices it should be stated what grades are sold at prices quoted. No. 1 fruit here is really fancy pack, all imperfections being cast out.—W. H. U.

Winchester, Kan.—Crop about as expected. Growers selling crop, as a rule, at following prices: Jonathan and Grimes, $1.50 barrel; Winesap, $1.20; Ben Davis and Missouri Pippin, $1.10; Janet, 90 cents. Apples will keep much better than usual. Have been offered $1.30 for 300 to 400 barrels Gano.—J. W. C.

Lawrence, Kan.—Growers mostly selling. Medium Winesap bring $1.20 barrel to $1.50 for Ben Davis and Missouri Pippin. Ben Davis poor and badly specked; other varieties fair to good.—B. F. S.

Parkerville, Kan.—Crop about as previously estimated. Fruit being sold mostly at $1 to $1 50 per barrel in orchard. Quality fair.—J. S.

Parker, Kan.—Crop turning out about as expected. Packing two cars a day when it is not raining; will have 80 cars. Growers mostly selling; have been offered $2.40 for our crop. Quality fine, but too much rain.—B. F. C.

Watervliet, Mich.—Less of a crop than was expected, on account of scab. Growers are selling at about $1 barrel. Quality fair.—R. H. S.

Charlotte, Mich.—Apples dropped until there was only about 50 per cent average crop. But few sales. Buyers offering $1 barrel. Quality of fruit rather poor.—L. W. W.

DeKalb, Mo.—Will be more fruit than was expected, but not so good quality as last year. Growers selling, as a rule. Prices, $2 to $2.25 for Jonathan, $1.50 for Winesap, $1.25 for Ben Davis; quality about equal No. 1 and No. 2. I have sold my crop at $2 barrel f. o. h. cars.—W. S. M.

Amazonia, Mo.—Crop exceeds early estimates. Growers selling fruit as a rule at $1.25 to $1.50 barrel. Quality good. Fruit sprayed with liquid spray shows up best.—J. W. C.

Chillicothe, Mo.—Crop about as estimated, selling on trees mostly at about $1.10 barrel. Quality first class. Jonathans sold sigh.—G. A. S.

Bogard, Mo.—Crop is not a large one, but better than expected. Fruit selling for $1 to $1.25 barrel delivered at station.—J. P. C.

Mountain Grove, Mo.—Crop about as estimated. Some growers storing, small growers selling at $1.10 to $1.25 barrel. Quality good to extra good.—J. T. S.

Steelville, Mo.—Quality of apples here is good. Want $2 barrel for fruit, packed and loaded on cars.—D. K.

Oregon, Mo.—Crop about as expected. Growers selling, first sales made at $1.50 barrel; small growers now selling at 75 cents to $1 barrel. Quality good. Great shortage of barrels; none to be had.—N. F. M.

Wheatland, Mo.—Growers are storing. Buyers offer 40 and 50 cents bushel in orchard. Quality good.—J. R. J.

Tecumseh, Neb.—Late apples have swelled out wonderfully. Prices range from $1 to $1.25 barrel. Quality first-class; fruit colored better than ever saw before.—W. G. S.

Crete, Neb.—Crop better in some orchards, fruit dropping in others. Growers sell when they can get forty or fifty cents a bushel for fruit.—E. F. S.

Lockport, N. Y.—Crop about as previously estimated—60 per cent of full crop. Some growers selling, some storing. Sales are at about these prices: Greening $2 barrel, Baldwin and Spy $2.25, Kings $2.50. These prices include barrels and delivering on cars.. Quality good.—D. T. McC.

Vail Mills, N. Y.—In traveling over the state I judge the total crop to be about 75 per cent of a full crop. About 25 per cent of winter apples have been marketed Buyers are offering $1 to $1.50 barrel for cold storage fruits. Orchards are now generally pruned, cultivated and sprayed, and old archards are being rejuvenated by this process.—J. P. F.

Bradrick, Ohio.—Crop more than we anticipated in our orchard, but unsprayed orchards not doing so well. Unsprayed fruit sold at $1.50 to $1.75 barrel; well sprayed fruit at $2 to $3. Our own fruit is about 95 per cent perfect, but unsprayed fruit is wormy. We have packed 1,260 barrels of No. 1 fruit over 2½ inches in diameter, and 174 barrels No. 2; over half done.—U. T. C.

Burlington, Vt.—Crop below previous estimates. Buyers offering $1.50 to $2.50 for apples. Considerable poor fruit.

Linden, Va.—Crop exceeds previous estimates. Growers selling in most cases at about $1 to $1.25 barrel. Quality medium.—J. E. W. Jr.

Walla Walla, Wash.—Crop fully up to former reports. Growers mostly selling at prices from 50 to 75 cents per bushel of 45 pounds. Quality very good.—W. S. O.

Seymour, Mo.—Crop exceeded estimate in quantity, but quality not so good. Few buyers here, and growers are shipping and storing as a rule. Prices $1 to $1.25 barrel. Quality only fair.—L. S. W.

Lagrangeville, N. Y.—Previous estimates were about right. Growers are selling as a rule at $1 per barrel for whole orchards. Quality of fruit good where orchards have been cared for.—T. C.

Questions and Answers

N. B., Beauregard, Miss.—Have any readers of the Fruit-Grower had any experience with Hazeltine's moth catchers in their orchards, and if so, I would like to have them give their experience in the paper.

Answer: This moth catcher has been up for discussion time and again, and the consensus of opinion seems to be that while the trap will catch lots of insects it does not catch the kind which does the most damage—namely, codling moth. Mr. Hazeltine says it catches the codling moth, and all entomologists in the country, practically without exception, say it does not. We have a letter from a subscriber which will be published soon, giving results of a test he made, but the test was not in the orchards and does not cover the ground you desire.

F. F. W., Wamego, Kan.—In August the leaves on Early Alexander peach trees commenced dropping, and then other varieties became affected, until the last of September a great many peach trees were almost entirely denuded, and I fear fruit buds are destroyed. Can find no worms or insects. Can you tell the cause and remedy?

Answer by Professor Howard: Without further information it is impossible to say with certainty what caused the leaves to drop prematurely. There are two or three forms of mildews which attack the leaves of the peach and cause them to drop, but they rarely become so severe as to do this. Mildews are easy to control by spraying with dilute bordeaux mixture (using 2 lbs. bluestone and 6 lbs. lime to 50 gals. water), or ammoniacal copper carbonate solution.

O. H. I., Chadwick, Ill.—(a) I will send you some raspberry canes. Will you tell me what is the trouble with them? They are the Conrath. Got them last year from a nurseryman that I think a great deal of; got 100 plants; they are fine berries, but some hills did not do any good; the berries were all seeds and the new shoots are all pretty much like the ones I send you. What shall I do for them and when? I have Ohio and others beside them and they are all right. (b) My grape vines were planted in the spring of 1901; last winter I covered them with dirt; would it be best to trim them this fall and cover them and what shall I cover with? Would dirt be best, or horse manure with lots of straw in it? (c) Which is best to cover strawberry plants with, strawy horse manure or straw? I have some good fine horse manure. Would that be good to put on my strawberry bed before covering? (d) Last fall I piled dirt around my apple, plum and cherry trees about a foot high, and in the spring I took it away and they did well this summer. Would that be a good thing to do this fall or not? They were planted in the spring of 1901. Now if I don't cover the grapes would it be a good plaan to bank them with dirt through the winter? (e) My cherry trees, planted in the spring of 1901, lost their leaves about August 1. What, do you think did it? They turned yellow, just like they do late in the fall. (f) I have a patch of ground that has been in garden for about ten years; has had some horse manure put on nearly every year. I want to plant it to strawberries next spring. I have lots of good horse manure. Please tell me how to prepare this for planting. I want to put in the earliest and of course the best kinds I can get. Which would be your choice? I have Warfield, Bederwood, Glen Mary, Dayton and Senator Dunlap. (g) Last spring there was a small worm on my strawberries. Just rolled the leaves around the blossom and ate them. Did some damage to my crop of strawberries and raspberries. What can I do to get rid of them? I was just out and got some canes to send you. I send you one cane with spots on. That is the way they get, and I found one hill with those growths on the roots. What is that now? There might be more of them. They are both Conrath.

Answer by Professor Howard: (a) There were two pieces of raspberry canes sent. One of them had about half of its surface covered with spots and blotches caused by a disease called anthracnose. The other was affected with crown, or root gall, which had spread above ground. To fight anthracnose the old canes should be cut out and burned in summer immediately after fruiting. The following spring spray the patch before growth begins, with bluestone solution (using four pounds bluestone to 50 gallons of water, no lime being necessary), and after the young plants are about six inches high, spray again with bordeaux mixture, repeating once or twice more, the last application being just before flowering time. When spraying after growth has begun it is necessary to direct the spray toward the young plants entirely as the leaves of older plants are injured with bordeaux. Cultivate and keep the planting clean. No certain remedy has yet been found for the root gall disease. In setting out plants be careful to cull out all those that have knots or galls on the roots and as a precaution it would be well to dip the roots before planting in a bordeaux solution. The diseased roots may be treated by removing the galls and painting over the wounds with a wash of blustone, copperas and lime, but it would be safer to set only those roots showing no signs of the disease. (b) I do not see any reason why you should cover the grapevines at all, but if you know by experience that they winterkill it is of course necessary to give some kind of protection. Do not use the manure unless it contains enough straw so that it will not ferment and cause heat, which would certainly injure the vines. We usually prune grape vines in late winter, but it they are to be protected during the winter they should be pruned in late fall so that there will not be so much unnecessary wood to cover. Straw, to a depth of four or five inches, with an occasional shovel of soil to hold it down, should furnish sufficient protection for the winter. The soil alone is a good protector but covering the vines with it is a laborious process. (c) Clean straw is the best mulch for strawberries, but if the plants need manuring, a dressing of fine manure may be given before the straw is put on. (d) Do not think the trees need banking up with earth nor the vines either. If the tops will stand the winter, the roots will too. (e) Perhaps a leaf-blight, which has done some damage this summer. Spray with dilute bordeaux mixture early in the season. (f) Prepare in early spring—just as soon as the frost is out of the ground—like for garden truck. Plant in rows four feet apart and 15 to 18 inches apart in the rows. Excelsior is the earliest variety. You have some good varieties, but you might add Aroma and Gandy to the list. (g) The insect is the strawberry leaf-roller. If they appear again next year, mow the patch, and when the tops are dry, set on fire and burn off the field. This will not kill the roots of the plants, but will destroy not only the insects but fungous diseases that may be there.

J. G., Dayton, Tenn.—I inclose two twigs of apple trees which are diseased. I will mark wrappers No. 1 and No. 2. Would like to know what it is.

Answer by Prof. Stedman: Apple twig No. 1 is infested with San Jose scale. Apple twig No. 2 is infested with oyster shell bark louse.

N. B., Beauregard, Miss.—I enclose you the part of the body of a young Elberta peach tree that was killed this summer by an insect which bored hundreds of holes in the body and limbs, the tree dying a few weeks after being attacked. I also lost a fine Gold plum the same way. I examined these trees several times, but failed to discover the insect that did the work.

Answer by Prof. Stedman: The limb sent is badly infested with the fruit tree bark beetle. Cut out all dead or diseased limbs and burn them before the beetles emerge, and keep all diseased or sickly and dying limbs cut out of the orchard so as not to form breeding places.

J. S., St. Marys, Pa.—I would like to know what insect those are on the apple twig and leaves enclosed, whether it is lice or what.

Answer by Prof. Stedman: The insects inclosed are the common apple aplies or plant lice, which are easily killed with a spray of kerosene emulsion or 10 per cent kerosene in water mechanically mixed.

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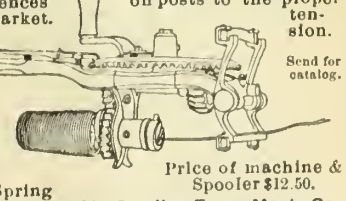

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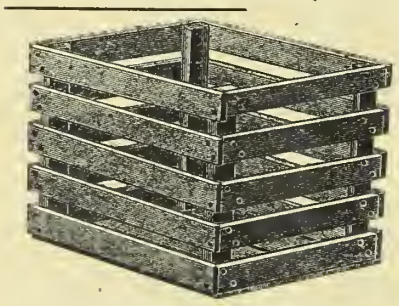

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It will pay fruit-growers to send for this pamphlet.—FARMER'S FRUIT FARMER.

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SPARTA, WIS.
Sphagnum moss in car lots a specialty, both in wired and burlap bales. Quality the best.

Strawberry Gossip

Now is approaching the time of year when men should begin to plan for next year's work. Shortly after the next issue of the Western Fruit-Grower reaches its subscribers, the first of the 1903 catalogues will begin to arrive. For two or three months there will be considerable time to study them and other written things on strawberries and their culture, and some of that time ought to be improved in that way. Might it not also be well for some who are not now in the business to begin studying also?

It may not be considered good policy to call the attention of outsiders to a business that now seems to have competition enough and too much, and yet it may on further thought be the very best thing to do. Let us for a moment look at present conditions from the viewpoint of those in the business. Never before in many years has labor been so fully employed as now. The great surplus that existed in 1895 and '96 has been fully absorbed and for several years past the cry for more help has gone up froh every quarter of the country. The men who in the panic times went into horticulture because they saw no other way to turn have for the most part gone back to their usual vocations. Meanwhile consolidation of business enterprises has gone forward at a rate never before conceived. The ultimate result of combination has scarcely been felt because the men who lost positions through it have quickly found others.

But these conditions cannot last always. A man does not need to be a calamity howler to predict that times will not continue indefinitely as they are now. When they do become slack, what will be the result? The old ties that existed between employer and employe are broken. The employer has sold out to the trust and a "new Pharaoh that knew not Joseph" reigns in his stead. The old employe will not be retained because he was once valuable or has always been faithful. He will be set adrift and the man who can turn out the most work will be retained. The man who has passed forty years and is still an employe, unless he has some special skill or knowledge of his employer's business, is in an unsafe place. Many a concern will not take such men except when labor is scarce. They want young fellows that do not get tired. When the present period of great activity gives place to one of less activity these older men and some younger ones will be turned loose. Then the small fruit grower will feel their competition, for it will come like a wave. It has done so before and it will again. Would it not be better for him if this body of additional fruit growers commenced its operations gradually? I think it would.

It is hard to see a man who has spent most of his life in a city or town suddenly thrown out of work. Many a good man under such circumstances does not know which way to turn. He has been so accustomed to draw his weekly pay from others that it is unnatural for him to undertake an enterprise under his own management. Had he been preparing for it, had he gotten his little plant in running order and ready to bring some returns when he should be thrown out of employment, it would not come so hard. It is on that account that I suggest that others than those now growing strawberries do some reading and planning this winter.

That is the line that is not yet in the hands of a trust and is not likely to be. It would be unjust to say that any branch of fruit culture is; but when we consider the great peach and apple orchards, orange groves and vineyards, with their millions of capital, their hundreds of employes, their size and strength overawe the poor man almost as the Chicago abbattoirs do the country butcher. The poor man cannot start in competition with them with much prospect of success. In small fruit culture it is different. As yet it is mostly in the hands of many small growers and for years it will remain there. It is its nature that it should. So large a part of its operations require but little skill and little strength that they cannot be conducted economically by grown men. They are really children's work, but children cannot be employed economically in too large numbers. A man can employ his own children and a few of his neighbors' advantageously in planting strawberries, cutting runners and especially in picking berries. Old men, invalids and others, who are most desirous to make themselves useful, but cannot do so in most vocations, can do so here. A man who is a "has been" so far as shop or ordinary daily labor is concerned can make some money growing strawberries on a small scale. If some of these men who still find employment because labor is scarce but will not find it when employment gets scarce, would look into this matter, learn what they can theoretically, better still learn a little practically by going into it in a very small way, the day when they are discharged will not come so hard. They will have something to turn to. They will relieve the situation by not being members of the great crowd of the unemployed, and I believe it will be better for those now in the business to have others go in gradually than to have hundreds or thousands go in at once, in their inexperience product rubbish and glut the markets and generally upset the conditions of the business.

Strawberry growing is not a bad side line. As a rule I do not think much of side lines, but there are cases where they are most useful. There are men who have employment part of the year, like school teachers for instance, who want something to do the rest of the time. There are others whose work extends throughout the year but does not take all their time in any part of it. Successful strawberry growing, like almost everything else, comes from a combination of brain and muscle. The man who furnishes the brain is supposed to get the main part of the profit. I know a man who is steadily employed at his trade, but at the same time is one of the best strawberry growers in his section. He has a few hours every day in the growing season that he can give to the work or its superintendence, and when there is more than he can do he hires a man to do some straight ahead work like cultivating or hoeing. He does not attempt to do a big business. He grows perhaps half an acre, but he knows his business thoroughly and does everything well, grows the finest fruit, gets top prices and makes some money at it. In the same way he grows some other small fruits and also all summer he has some income in addition to that he has derived from his trade. He likes the work and it is really recreation after several hours a day spent indoors at his bench.

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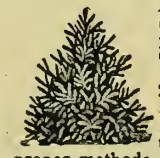

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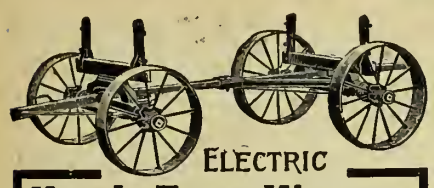

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GOOD, WELL ROOTED
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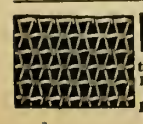

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winter closes in, we ought to get out of the way all the work that can be done this fall. Everybody who has had any experience knows that there is enough to do in the spring without any left over work. Whether it is advisable to plow land in the fall for next year's planting may be an open question. As a rule I believe it is best. Sandy land will not pack whether it is plowed or not. Land that is heavy and hard cannot be made mellow in any other way so well as by turning it up enough in the fall and letting the frost of winter break the lumps. It may settle down too solidly to suit some people, but I am satisfied that a "hard bottom" is what strawberries want. In the spring it can be worked up a few inches deep with a disk harrow, spring tooth harrow or other implement. The snows and rains of winter not all have run off, but have soaked the ground full and it has become a reservoir of water for the plants to draw on all summer. The solid bottom enables the capillary acton to become perfect. The stirring of the surface can be done early if the ground is dry enough or deferred if it is too wet. While a man cannot always plow a piece of land as early in the spring as he would like to do, he can go over it with a tool that covers a strip of several feet at a trip and get his land ready in good season. It requires a great deal of harrowing to make the ground firm, while the frost and rain will do that for nothing if it is plowed in the fall. Then, too, some experimenters claim that very late fall plowing destroys many white grubs. They tell us that these worst enemies of our make for themselves nests in the ground. If these are turned up to the surface and broken very late in the fall, the grubs are unable to construct new ones and the alternate freezing and thawing kills them.

Another good fall and winter job is ridding land of stones, in districts where stones abound. About here there are plenty of boulders from the size of one's fist to that of a big trunk, and a new crop comes to the surface with every plowing, despite good work in former years. They are great nuisances in plowing and cultivating, especially hidden ones not below the plow point. It is something of a job to sink these, but it pays well if it can be done were there is not other more important work to do.

Draining is work that can be done in the fall and winter too. If a few furrows are plowed where the drain is to be run and the earth thrown toward the prevailing winds, the furrows will drift full of snow and only in the very coldest times will the earth in the bottom of them freeze so it cannot be dug. Shoveling mud and handling frozen tile are far from pleasant, but if one has not the time in the rest of the year such work can be done in winter; and it requires no argument to convince any grower of the value of underdrains in heavy land.

Stray trees on a farm add to the beauty of the landscape and most farmers like them in the land that is likely to be used for pasture, but a tree in a strawberry patch is something that should not be tolerated, unless in the case of a very young orchard in which strawberries are being grown. In July or August of a dry year, when strawberry plants are almost dying for want of water, what show have those under which the roots of a big oak or elm extend, drinking up what little water comes from below before it can reach the strawberry roots? Trees in fields and along fences ought to be reduced to fence posts or firewood, if the best results are expected from strawberries grown near them. Between now and next March is a fine time to execute the work of reduction.

How many acres of land will lie hard and bare this winter that might be covered with a growth of rye! I do not like to plant strawberries on land on which rye has just been plowed down;; but, when the land is to be worked in another crop a year before the plants are set, rye is excellent. Not only does it take up fertilizer that would wash away or leach down below the reach of ordinary roots, but, especially where the ground is heavy, it loosens it up and furnishes humus, makes it easier to work and less liable to drouth and washing. I do not think most of us yet appreciate the value of green crops to plow down. We handle tons of manure to furnish as much humus as a few bushels of rye sown in the fall or legumes planted in the spring would furnish. Of course the manure contains fertilizer that these crops do not, but a few sacks of phosphate would furnish that.

WILIAM S. CRAWFORD.
Cuyahoga Falls, O.

It Means Something
to the world that there is one old family remedy that is believed in by endless thousands of humanity after 40 years' trial.

WATKINS' Vegetable Anodyne LINIMENT

It means that here is a remedy that makes you feel certain of the lives of your dear ones in cases of accident or sudden sickness. It means many dollars saved to you that would otherwise go to the doctor or veterinary. In all cases of cholera morbus, diarrhoea, flux, rheumatism, cuts, cramps, strains, burns, mumps, sore throat, diphtheria, etc., it is a God-send.

Worth Its Weight in Gold.

Red Lake, Minn., June 5, 1901.
One time last summer I got very sick with cholera and thought sure we would have to send for the doctor, but after taking 3 doses of Watkins' Vegetable Anodyne Liniment I felt as well as ever. Since then I use it every day and find it the best family medicine in the market to-day; it is worth its weight in gold. JOSEPH DUCHARME.

Thousands of good people have written in the same vein.

FOR ANIMALS it cures colic, diarrhoea, sprains, cuts, scratches, bruises, sweeney, etc.

Don't wait until you are down sick, or injured by some bad accident, but be sure to get a bottle from our agent when he calls. If no agent in your county, write us at once and we will see that you are supplied. Price $1.

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We send our instructive 100-page finely illustrated Home Doctor and Cook Book to every inquirer free. It is a very valuable and interesting work for farm and home, containing weather forecasts, fine cooking recipes, etc. We send it free whether you are ready to buy now or not.

THE J. R. WATKINS MEDICAL CO., 36 Liberty St., Winona, Minn.

The Management of Raspberries and Blackberries.

A correspondent asks the Maine experiment station for information as to the time for pruning and transplanting raspberries. In reply the following suggestions were made.

"The ideal treatment for raspberries and blackberries is to pinch them back at intervals during the summer and thus secure strong, sturdy bushes three and a half to four feet high, with laterals, one to one and a half feet long, rather than to practice severe heading back after the plants have become long and 'leggy.' If, however, as is frequently the case even in the best managed gardens, the plants are at this season making vigorous growth which may not mature, they should at once be cut back to the desired height and the canes will harden before cold weather. Many prefer to cut back the bushes in the spring, after the extent of winter killing is determined. Thinning the canes, which should always be practiced, may be done at any time during the season. In general one-half, or more, of the young canes which appear should be cut out.

"Blackberry and raspberry bushes may be transplanted this fall if the work is done immediately, but better results are usually obtained from spring planting. Currants, on the other hand, have given rather better results from fall setting. W. M. M."

Designating the Sex of Strawberries.

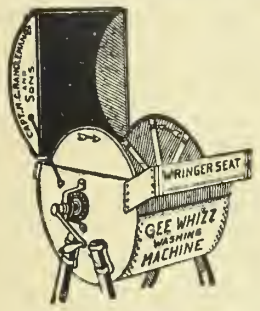
Having noticed the question recently raised in your columns about the proper or best way in which to designate the perfection or imperfection of the flowers of the varieties of the strawberry, I wish to express a thought or two.

In the first place, the normal strawberry flower is a perfect one in fact and botanically speaking. Culture has led the varieties of to-day far from the normal type and some of our most valuable kinds are imperfect in their flowers, so that their stamens are either wanting or so deformed and devoid of pollen as to be incapable of self pollination, much less to be able to pollenize the flowers of other varieties. This is a true statement of the existing facts.

As to the terms that should be used to express these peculiarities, I claim, as I have long claimed in public and in private, that the word perfect, abreviated to Per., should be used for the kinds that have perfect flowers and imperfect, abbreviated to Imp., should be used for those that have imperfect flowers.

These terms are short; they will be in accord with the facts and they are the same terms used in scientific botany. Moreover, they are now adopted by many of the state experiment stations, horticultural societies and nurserymen. But the most important of all reasons is, that they will be readily understood by the common fruit growers. All the old terms, such as "B," "P," "S," etc. should be dropped at once, because they stand for terms that are partly contrary to the facts, perplexing and unintelligible to most people.

H. E. VANDEMAN.



Gee Whizz Washer
(Double Reflex.)

Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

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1415-1417 E. 18th St. Des Moines, Ia.

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A Modern, Progressive School, making a Specialty of Bookkeeping, Shorthand Typewriting Penmanship, Telegraphy and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. School in session throughout the year. Catalogue free. E. E. GARD, Proprietor.
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Eight hundred thousand at the
Orton Nursery, Kiowa. Kan.
For Fall or Spring Delivery.
6 to 12 inches, $2.50 per 1000.
12 to 18 inches, 3.50 per 1000.
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Write for special prices on large lots; also for free descriptive catalogue of general nursery stock. I sell direct to planter and save you agent's profit. Replace free of charge; and prepay freight.
F. B. ORTON, PROP.
ORTON'S NURSERY, 8 miles southeast of Kiowa, Kan.
Please mention the Western Fruit-Grower when you write.

Apple Seedlings

Iowa grown; grown from Vermont natural seed on new clean land, free from aphis, root gall, or any other disease. Grape vines the largest and best stock in the country. Apple, Cherry, Plum, Pear and Peach trees, Currants, Gooseberries, Raspberries, Blackberries. Send for Price List.

SILAS WILSON, Atlantic, Ia.

BILLINGS NURSERY
Billings, Mo., 20 miles southwest of Springfield; has a general line of all kinds of Nursery Stock. Apples a specialty. I have 20,000 Payne Late Keeper, 1 year; 50,000 Soft Maple. I have a fine stock of 2-year Apple for the fall trade. My stock is true to name.
G. W. TRIBBLE, Prop., Billings, Mo.

The Fruits of Intelligence.

(A Story of 1910.)

"Mandy, this St. Joe man talks an' acts fair an' seems to be in good standin'. Looks like ther might be somethin' in his deal!"

"I dono, John, the's so many snides goin' nowadays, you cain't be too keerful."

"Right enough; I'm goin' to be sure I'm right before I go ahead; but, nothin' vencher nothin' have! I know the's chances of the right kind to put money where it'll make money, fair, square an' safe, if you use the sense the good Lord has giv ye. It's tuk us a long time to lay by a mighty little money, an' I sure don't want to lose it, but a man d hev to live longer than Methooselum an' work like a hoss all the time to get any money ahead at sich a rate—an' what good 'd it do him? A man'd better hev the nerve to try a square business chance when it's offered him. If he lost by it, he wouldn't be much worse off; for what's the sense of slavin' all your days to save by a few dollars 'at won't do anybody any good 'at ye can notice? What can ye do with a few hundred dollars? If a man cain't make it make more for him, he'd better spend it and get the good of it, coz it'll go anyway, one way er nuther. This man offers to talk business on the square. I'll get Will Jordan an' Henry Hull to be with us. Will's sharp as a tack, an' with Henry to raise objections an' Will an' me to ask questions, we'll about find out what ther is in his deal."

"Yes; an' like es not, git taken in, neck an' crop," gloomily responded Mandy.

"I hev confidence enough in myself to risk lookin' into a man's proposition anyway. I don't ezzackly think I need a gardeen to keep me from bein' run over in the big road, an' I haint never bought no gold bricks yet," answered John, a little testily. "If this man's scheme is all right, it'll bear a good turnin' over. If not, I'm not goin' up agin it."

The speakers, John Brown and his wife, owned a small farm, slenderly stocked, and having a neat orchard behind the tidy dwelling. They had struggled with sickness and misfortune, but had managed to pull out of debt, and a good wheat crop left them $250 in bank and with a good corn crop and fair apple crop coming on. Brown was careful and conservative, with an intelligent conservatism, as results proved, had worked a long time to lay by a little money and was beginning to realize the truth of Chauncey Depew's statement that economy is no longer the road to wealth. While thrift is necessary as ever, modern fortunes are acquired only by those who have the judgment and courage to grasp opportunities when offered; savings as well as capital must be invested so as to add to their own volume; and merely lending money at six per cent is a slavish way to increase it. He had seen an advertisement in his "Agricultural Review" by the secretary of "The Arizmo Development Company of St. Joseph, Mo., offering " a safe investment, with unusual returns," and while he had plenty of caution, he also had judgment, had confidence in himself and knew that there are chances to make good money, if one strikes the right lead, and he determined to inquire into this matter. Correspondence led to an arrangement that the manager of the company should come to Burgville, drive out to Brown's place, a mile distant, and meet him and some of his neighbors together so that he might present his matter to several at once. This led to the conversation above quoted.

So Brown made his arrangements with his neighbors, Hull and Jordan, to meet the man from St. Joseph. Hull objected at first, saying: "He wants to sell stock in a minin' property, an' I wouldn't tech anything of that sort, under no consideration. Most uv 'em's clear scallawaggery. I wouldn't even listen to no talk about 'em."

"But," said Brown, "I've promised to discuss this matter with this man, an' I'm going to. I'd like to have ye by to question him, because I want to get at the facts, an' I know you can corner him if anybody can."

"You bet, I kin," said Hull, flattered. "I'll take him through a course uv sprouts for ye."

On the chosen day the stranger drove out to Brown's. Jordan was already there. Brown met the visitor at the gate and, after mutual self-introduction, said: "I've asked two of my neighbors to be with us. One is Will Jordan, a young man, just married. He is a renter and has but little property, as yet, but he's smart an' a hard worker an' makes money an' he'll be gettin' ahead. The other is Henry Hull; he owns lots of land an' stock, but I warn ye that he don't believe in anything else an' has mighty little use fer business in your line." To this the stranger replied that he would be glad to meet both, and they proceeded to the house. Hull now arrived and, as soon as all were made acquainted, he began his promised "course of sprouts" by saying:

"Brown tells me you're wantin' to sell stock in a minin' company. I don't want nothin' of that kind. I invest my money in land an' livestock. They're safe investments. I'm jest figgerin' on buying that forty next t'you on the west, John," addressing Brown. "It can be had fer forty an acre an' it's worth it. I don't want any minin' in mine. The's so many swindles—I don't say yours is one," addressing the stranger, "but they're mostly that way an' not one in a thousan' ever makes anything. If one turns out good, the little stockholders gits squeezed out. The's two dollars goes into the ground for every one that comes out uv a mine."

The visitor heard him in respectful silence; then said: "Mr. Hull, I know of you through mutual friends in your town. You own stock in the bank there and have recently taken an interest in a grocery business there, with a friend."

Hull replied: "Yes; I know the people that run the bank an' they're all right. The grocery stock was goin' at a sacrifice. A friend of mine that has had experience put in part of the money an' I part an' we bought it in."

"Yes; you take hold of these properties, out of your usual line, because you have confidence in the people you mention; yet, banks often fail and bank employes go wrong, and United States statistics show that 95 men out of every 100 who go into mercantile business fail; that less than half as large a percentage of mining propositions as of merchandising fail."

"I didn't know that," replied Hull, "but these things are right where I can look after 'em myself, an' they're all right."

"I have no desire to shake your confidence in either," said the stranger. "You, however, cast reflections upon my enterprise (which I know to be all right), because there are some mining propositions which are badly or dishonestly handled, though there are but half so large a proportion of such as there are failures in grocery business and defalcations in banking, both of which you put money into. You say that these are where you can watch them; but you have to trust other people to conduct them and if they go wrong the probabilities are that the mischief is done before you know it. We simply have to trust other people in all sorts of enterprises. You do it, in your farming and handling stock."

"Well, I put no money in mines. I invest in land an' stock. Then it's safe," said Hull.

"I admit," replied the visitor, "that real estate is a very stable investment. No matter how good the property, if it has to be sold—to settle an estate, for example—it must nearly always be disposed of at less than its value. Real estate bears an undue portion of the taxes, the actual net annual profit on the valuation is low, usually 2 to 4 per cent, and I do not know a person in any other line of business that has more trouble for his money than one whose income is dependent upon the average class of tenants. As to livestock, I have no doubt you have lost many a fine lot of hogs and poultry by cholera, fine calves by black-leg and had other costly experiences of the same sort."

"Yes, I hev," admitted Hull.

"In fact," continued the stranger, "there isn't any sort of business man can engage in that is not subject to some trouble and risk, and it is probable that the lines you choose are among the most troublesome and risky, and least profitable."

"Well, I don't risk anything in mines," asserted Hull, and, nodding to the company, he stalked away.

"Mr. Hull is a representative of a large class of people who do not realize that, notwithstanding the statements always in people's mouths derogatory to mines, a good mine, honestly handled, is not only the best paying by all odds, but also one of the safest and least troublesome investments. I felt just as Mr. Hull does, because I had always heard mining talked against, but on a business trip into a substantial mining region I found, to my surprise, that mining is one of the safest and surest, as well as one of the best paying, lines of business, if judgment is used in going into it. There is no need of being taken in by frauds in this any more than in other business. If one has nothing else to judge from, let him consider the people in charge. If they are honest and competent, and willing to back their proposition, the chances of success—and a possible big success—are far ahead of those in any other line of activity."

"Yes, but 'sposin' they ain't honest 'n' competent?" suggested Mrs. Brown.

"Why, then you stand a chance to lose, just as you do if you deposit money in an unsafe bank; but your husband keeps his money in a bank, doesn't he?"

"Yes."

"Yet there have been more bank failures and defalcations than there have been mine failures and mine swindles, many times over. You are simply accustomed to taking that risk and think nothing of it, just as Mr. Hull, year after year, takes the risk of losing thousands of dollars through hog cholera or some cattle plague, just because he is familiar with the risk. Now our company is controlled by St. Joseph people of unquestionable reputation. Not one of them could afford to be connected with an enterprise that is not straight. The business is conducted strictly from the standpoint of principle, and every step taken has been demonstrated. We do not stand upon 'chance,' so-called, but upon what we have proven to be truth and substance. I am so sure of results that I give my whole time and all the financial means I can command, with utmost confidence, to the enterprise, and urge my best friends to invest in it."

"Your mines are in Arizona, I believe," remarked Jordan.

"Yes, in the southeast part, in the greatest mineral region in the world. Close by us is the 'Copper Queen' mine; the 'Green Consolidated' is just across the Mexican line, and Senator W. A. Clark's 'United Verde' is in the same belt. All these are copper mines."

"How'd you get this Arizona mine?" asked Brown.

"A company of us fitted out an expedition, headed by an experienced mining prospector, and sent him ahead of a new railroad that was building into a wild country which was for a long time overrun by the Apache chief, Geronimo, and his band. The discovery of these mines was the result and we therefore got our title direct from the United States government, perfect in every respect."

"Your advertisement says that your stock at par is guaranteed by gold bonds, and without the bonds is fifty cents a share, but that some is offered at the present away down at twenty-five cents. Explain that," requested Brown.

"One of the big guaranty companies of the Pacific slope, made up of men who know mines and mining intimately, has contracted, after the examination as to our property, to issue thirty-year 3 per cent gold bonds, based on first mortgages on real estate, guaranteeing to the purchaser of our stock that he shall receive his 3 per cent annual interest, payable semi-annually, and, on maturity of the bond, receive in United States gold coin, of present value, just what he paid for his stock. They will, at any time, lend 80 per cent of the cash value of the bond at 6 per cent, on the bond as collateral. Thus the investor gets the interest on his bond; he receives, in addition, all dividends on his stock, and, when his bond matures, he receives back all the money he paid for his stock, so that it has cost him nothing, and, when it becomes 'bonanza' stock, as we are convinced it will, he has a rich prize that has cost him nothing. These bonds are secured by twice their value in first mortgages on real estate and other securities deposited with one of the biggest trust companies in the United States and bear their certificate to that effect. Of course, our company pays for such a guaranty, just as a man pays for his life insurance, for example. So, if the buyer of stock desires the gold bond, his stock will cost him par. If he is willing to take the stock, as we do, on his faith in the property, he can get it at the company price of fifty cents a share—twice as many shares for his investment as he would get of the guaranteed stock. But just at this time there is a quantity of what was private stock that had to be sacrificed, for sufficient private reasons, and had to be taken up, and it can be had for twenty-five cents a share, or just half the price of the same stock that has never been sold by the company. That would be at the rate of four one-dollar shares for a dollar. It is a snap, for when that stock is sold, the price of what is left will be not less than fifty cents a share. Our present developments show that we probably have one of the most quickly and cheaply developed big mines that ever was found. All our development work, practically, is done right in the mineral. It is in sight all the time."

"Why does this company sell any stock at all?" asked Mrs. Brown. "If it is so good, why don't they keep it?"

"For the simple reason," answered the stranger, "that development must be carried on to the dividend paying stage, and we need some others to join their efforts to ours. What we have paid in has carried it thus far. We have fifteen discovery shafts on our 375 acres, all of them showing mineral; also a development shaft for the property as a whole and a tunnel to connect with it at a depth of about 350 feet. Assays thus far show from $4.36 to $39.33 per ton of gold and silver alone. At the surface, where the rock has been exposed for thousands of years, the copper has weathered out except the stain, yet that is the metal we depend on. The gold, silver and lead we regard as incidents, though one gold assay was more than ten times that of the great 'Homestake' mine last year, which divided a million and a half, from ore that only averaged $3.90 per ton. We had an expert, educated mineralogist go all over our proposition many times, requiring several months. He is a very careful, conservative man, and he stated unreservedly that we have the best showing for a big mine' that he ever saw, and he has seen all the great mines of this country, from Mexico to Alaska. He showed me pieces of ore which had originally carried as high as 60 per cent of copper, its place now filled by lime. When we have penetrated beyond the weathering influences, we know that we shall find the copper intact. We who went in at first have carried development to the present stage. We wish some help now to carry on the work, and though those who come in with us now get something of great promise, where we had only a chance, yet you get in on a 'ground floor' basis."

"St. Joseph is full of rich people," suggested Jordan. "I'd think they'd snap up this stock if it's such a good thing."

"They'd 'snap it up' just as your friend Hull does," replied the visitor. "St. Joseph's rich people are mostly so-called 'conservatives' of the ultra type. They lend money on real estate worth two or three times the loan. If you should find one that would put some money into an enterprise like this, it would be with the idea that his or her money have all there is in the deal. Our people are of undoubted character and ability, but of moderate means, and we seek others to come with us on the same footing, guaranteeing to every stockholder, whatever the amount he puts into the company, a fair and square deal. I am in position to guarantee this and I emphatically do so."

"How soon d'you think your mine'll be payin' dividends?" asked Brown, "and how high'll the stock go?"

"It would be impossible to state with exactness," was the answer. "Our ore veins protrude from the surface and the pay deposits should be easily reached. We are only three miles from railroad, over comparatively smooth ground, and two big smelters are building only seventeen miles distant. Development must, under such conditions, be comparatively quick, easy and inexpensive. Even before dividends begin, our stock will grow in value, just as a vacant piece of real estate does, even though it is not producing an income. The 'Calumet and Hecla' copper mine, on Lake Superior, has paid in dividends some seventy-nine million dollars out of ore that produces only copper, and less than 2½ per cent of that. Its stock originally sold at one dollar a share. It has risen to $1,500 a share. If you had invested $100 in it ten years ago the stock that you would have bought would now be worth $150,000 and be bringing you an income of $750 per month."

"My! If we'd had a chance to put our $250 into that, we'd get along on $1,850 a month, wouldn't we, Mandy?" interjected Brown.

"Aw, that's one case in a thousand," replied she.

"Yes; but there are hundreds more," said the visitor. "But," addressing Mrs. Brown, "if you had had a chance to invest in that stock, you would have looked upon it just as you do on this."

"I reckon I would uv," admitted Mandy.

"Most anybody would like to have some of it now. I venture that even Colonel Hull would not turn it down at, say, first cost," added the visitor, and they all smiled. Then he continued: "I mentioned the 'Green Consolidated,' the 'United Verde' and the 'Copper Queen,' in the same region as our mine. Well, if you had put your $250 into the first of these only two years ago, it would be worth some $2,000 now. Senator Clark is said to have paid $15,000 for a controlling interest in the 'United Verde' twelve years ago. It now pays him nearly a million dollars a month. It is the greatest mining property on earth; greater than any gold mine, greater than a Kimberly diamond mine. The 'Copper Queen,' near us, cleans up half a million a month, and your $250 invested in it when it was where we are now, would now be worth $200,000. Our surface prospect is far better than theirs ever was. If we do one-tenth as well in the next ten years as they have done, $250, if invested in our stock, will be worth $20,000. We hope to go a long way beyond that. Senator Hearst of California is said to have bought control of the 'Homestake' a few years ago for $5,000. It has paid his estate over $800,000 a year for many years past. 'Granite Mountain' stock originally sold for ten cents a share. It has since paid five times that per month—that would be $1,250 a month on an investment of $250. 'Belcher' stock, in the Comstock lode, rose from sixty cents to $1,500 a share—and there are scores and scores more that might be quoted."

"I'd like first-rate to buy some of your stock if I could," said Jordan, "but I haven't money enough ahead to get any amount."

"You can have the privilege of paying one-tenth down, and one-tenth each month, until paid up," replied the visitor. "A payment of $25 down and $25 a month would buy you 1,000 shares."

"Yes, but I might make several payments an' then fall down an' lose what I'd paid."

"No; if you could not keep on, we would issue you stock for whatever amount you had paid in. We are not trapping anybody."

"Would you sell a smaller amount the same way, so $10 down and $10 a month would pay for it?"

"Yes; or as low as $5 cash and $5 a month for nine months, but that would be the lowest."

"I'll go you on the $10 a month," exclaimed Jordan. Then the visitor looked inquiringly toward Brown.

"What do you say, Mandy?" he asked, in turn.

"Oh, I dono," she replied. "I wouldn't mind takin' a little of the stock that we could pay cash for; not enough to break us, even if we lost all we put in."

"I'd rather pay down the $250 we have on hand on, say, 2,000 shares, an' pay the balance in three an' six months," replied Brown, and the visitor indicated that this arrangement would be satisfactory; but Mrs. Brown stood out for an all cash transaction, and they finally bought 1,000 shares for $250.

Then the visitor said: "Now you can have this further chance: We will allow any of you a commission of 10 per cent on any stock you can sell. We have a neat booklet showing location, plat, etc., of the mines and I will supply you as many of these as you can use judiciously, and a little effort on your part will enable you to either increase your holding of stock or make you a good cash return."

So it was arranged and Brown soon afterward sold 1,000 shares to a neighbor and applied his $25 commission in part payment on 500 more for himself. Jordan also succeeded in making six of his ten payments by commissions on sales, and before either had paid up, the tunnel at the mine had penetrated ore deposits that sent the price first to fifty, then sixty and then to seventy-five cents a share, and company stock was taken off the market. Private stock continued to advance in price, however, although the company was not yet declaring any dividends, owing to installing machinery, cross-cutting, sinking the main shaft deeper, etc.

There was great satisfaction in the Brown and Jordan households when the first monthly dividend of a half-cent a share was declared. While this was but 6 per cent per annum on the par value of the stock, it was 24 per cent on what it had cost them.

Just before this time Henry Hull had surprised Brown by asking him one day what he would take for his Arizmo stock, and, on receiving the reply that it was not for sale, tried to argue the case, and made various offers, up to twenty-five cents above par. He said: "That is five times what you paid for it only three years ago. That's a perty good profit."

"Can you get any of the stock of the company at that price?" inquired Brown, slyly.

"No; you know they don't sell any more at any price," replied Hull.

"Well," said John, briefly, "mine's just as good."

Presently he added: "I found that out a good bit ago. As long as they don't sell any stock, I won't. Besides, I thought you wouldn't buy mining stock at any price."

But Hull was walking away in a grumpy mood. Later he bought, at $5 a share, 1,000 shares that Brown had induced a neighbor to buy when it was at fifty cents; and he regretfully remarked: "John, just think what I could have got for what I put into that west forty."

After dividends began, there was a quick increase of a cent a month per share until five cents was reached, and then upward jumps until now, in 1910, eight years after Brown's first courageous purchase, he is getting regularly forty cents a month per share, with the resources of the mine just fairly getting in sight; a flourishing city, with banks, public library, stores, smelter and railroad shops spreading about the mouth of the tunnel through which the treasures of the Arizmo are pouring in a precious and constantly augmenting stream. Brown has bought the "west forty" and other forties, built him a mansion to his taste, stocked his farm with blooded stock and receives each month his dividend check equal to a bank president's annual salary.

It pays to be wisely courageous. (A sequel in our next issue.)

Read the Arizmo announcement below.

TO READERS OF THE ABOVE STORY.

This story is made up of absolute facts to date and strong probabilities for the future. The Arizmo Mines, therein described, belonging to the

ARIZMO DEVELOPMENT CO.

offer one of the greatest opportunities for **SURE** returns that has ever fallen in your way, and the probabilities are that returns will be very large. The guaranty which the company is enabled to offer, in the way of gold bonds, shows how the property is regarded by men who understand this sort of thing.

Read the story and consider this fact. If you should put $100 into this proposition and it were possible to wholly lose it all, $100 would be the measure of your loss. If you fail to go in at all, and the property turns out anywhere near what all indications point to, you will miss thousands of dollars. In other words, you risk more by staying out than by going in.

J. W. Gregory, Secretary and Business Manager of this Company, was for twenty years identified with the newspaper and irrigation interests of the Great Plains. For his personal standing and reliability he refers to any man prominent in Kansas from 1885 to 1895 (who will know him as editor and publisher of the Garden City Daily Sentinel), and to the following: Mr. M. M. Riggs, secretary Queen City Building and Loan Association; Mr. E. D. McAlister, cashier National Bank of St. Joseph; Mr. A. J. Enright, secretary Missouri Valley Trust Co.; Mr. J. G. Schneider, vice-president of German-American Bank, all of St. Joseph, Mo.; also to W. G. Campbell, Jr., manager of the Western Fruit-Grower, a fifteen years' acquaintance.

This is not an unlimited proposition. Those who apply first well get in. One hundred moderate investors will take all the stock we will spare. Don't lay this aside to be attended to later; you will forget or neglect it, or you will be late and the stock will cost you more. Send your subscription at once, accompanied by draft or money order for at least one-tenth of the amount, or send for free booklet. Address

J. W. GREGORY, Sec. and Mgr.
I. O. O. F. Auditorium,
ST. JOSEPH, MISSOURI

Cold Storage for Apples.

The New Hampshire Experiment Station has a bulletin in press that will give results of experiments of putting apples in city cold storage. This will be distributed shortly. As a forerunner to this pamphlet and in order to call attention briefly to some of the more important points of interest, the following brief abstract is here given of some practical experiments conducted by Prof. Rane, the horticulturist of the station.

On November 20th, 1899, a number of barrels of apples were shipped to one of the Boston cold storage houses. Beginning with February two barrels were taken out each month until July and examined. The fruit did not receive any extra care and was representative of apples as ordinarily purchased at that time of year on the open market. It was found that the apples could not safely be allowed to remain after April 1st, as they decayed rapidly after that date. The prices at time of shipment ranged between $1.25 and $2.00 and on April 1st they brought $3.50 to $4.25.

On October 27th, 1900, a second shipment of apples were sent to cold storage with the following results: Price when put in storage, $1.25. On April 23d ten barrels sold for $$34.00. Expense, carting 50c, commission 8 per cent, $2.72. Net proceeds, $30.78 or $3.08 per barrel. Freight and cold storage charges must be deducted from this amount. The storage rates were 10c per barrel per month, or for the season ending May 1st, 35c to 50c, according to the number if barrels. The freight charges can easily be found out according to the location of the individual.

The greatest care in handling and placing the fruit immediately into cold storage pays for the extra trouble. One must understand that cold storage will simply retard and not prevent entirely the spread of decay. If the fruit is in prime keeping cindition on entering it is likely to come out in proportionately as good condition.

Where apples are placed in brine and cold air storage the cold air gives the best results.

From an examination of the prices paid in the fall and those paid on April 1st for the past six years, the results show that there has been a sufficient increase to warrant the extra expense of storage in every case and on the average the practice has resulted in good profit.

Upon examination each month it was shown that the greatest amount of decay was found in the bottom of the barrel as taken out or the headed end as packed. A very large proportion of these were also within six inches of the bottom, showing that much care is needed in not over-crowding and bruising the fruit when packing, if the fruit is to be stored.

The reasons that cold storage apples do not keep long after taking them out are that the temperature is so much higher and the conditions are far more conducive to decay in the spring. Where the fruit was taken out in the winter months and given spring conditions, as placing them in a warm greenhouse, they decayed equally as quickly.

Our recommendation would be to pick the fruit relatively early, a trifle earlier than the common custom. Use only the best grade for storage, and pick, grade and ship the same day if possible. The sooner the fruit is in storage after it is picked and cooled down to an even low temperature, the better it keeps. Do not expect impossibilities of cold storage. It never makes an ill-shaped apple shapely, an unsound fruit sound, a wormy apple perfect, or a pale, sickly, immature fruit colored. The apple can not be expected to increase in size or overcome rough, careless treatment it perchance may have received before going in. With a proper knowledge of the conditions carefully complied with, there seems to be no question but what the practice of placing apples in cold storage can be recommended.

Lime as a Fertilizer.

A renewed interest in the use of lime on the soil has been excited by the experiments of the Rhode Island Experiment Station, at Kingston, in which a large increase of certain crops was produced by liming the soil. While the Ohio Experiment Station was located on a gravelly, clay loam at Columbus experiments in liming were made, but with negative results. This work has recently been undertaken again, however, on the lighter, more sandy clay of the soil on which the Station is now located, and although it has not yet gone far enough to justify positive statements, the present indications are such as to encourage a more extended trial.

In one case a half acre of land on which wheat is being grown year after year was treated with a thousand pounds of lime, freshly slaked and applied broadcast just before sowing the wheat. The crop immediately following showed but little effect from the lime, but the second crop, just harvested, shows an increase of about six bushels per acre for the limed portion over the unlimed half acre adjoining.

In another case, half of a tract of three acres was limed in the spring of 1900 and planted in corn. There was an apparent increase in the corn crop for the limed part of this tract over that left without lime, and in the oats crop, following the corn, there has been a further increase of over nine bushels per acre.

In a third case part of a block of alfalfa was sown on limed soil, and part on unlimed, with the result that the limed portion made by far the more vigorous growth.

One method of applying lime is to pile unslaked lime in small piles on land which has been plowed and harrowed, slack by wetting and covering with earth, then mix thoroughly with loose earth and spread with the shovel. Piles of a peck each, a rod apart, will give forty bushels, or 2,800 pounds per acre, which would be considered a moderate dressing.

Slacked lime can not be easily applied with the ordinary fertilizer drill, but unslaked lime, ground to coarse meal, is now on the market, and this may be successfully applied in this manner.

The function of lime is not, properly speaking, that of a fertilizer, as its effect is not so much due to the actual plant food which it carries to the soil as to the rendering available of plant food already in the soil, and of improving the physical condition of the soil itself; hence the lime should be as fresh as possible.

In consequence of this effect of lime it should always be followed by liberal manuring or fertilizing, otherwise its use will tend to exhaust the soil; but lime should never be mixed with manure, nor with other fertilizers, especialy those containing ammonia, as it will liberate the latter and cause its escape. It should be applied as long as possible before the crop is planted, and is likely to be especially beneficial to clover, timothy and other grasses.

CHAS. E. THORNE, Director.

Fall Planting of Trees.

The present autumn has so far been an ideal one, and it is likely there will be a great deal of nursery stock planted before winter opens. There are many who prefer fall planting, especially cherry trees. Mr. J. S. Butterfield of the Lee's Summit (Mo.) Nurseries recently issued a circular, in which he advanced reasons for planting cherry trees in the fall, and his views are supported by the following from a writer in Orange Judd Farmer:

"My opinion is that an acre of cherries of the right varieties, properly managed, will be as profitable as the same ground planted to apples or peaches. The first thing to consider is a suitable location. The best soil is a light loam that will retain moisture well during the summer. It is useless to plant cherries on low or wet land, and in fact it is not desirable to locate an orchard on low ground, even if it has been well drained, as there is more danger from frost than on high ground. The ground may be prepared for cherries by cultivating deep and plowing under a crop of cow peas or some other leguminous plant a year or two in advance of planting to cherries. This will enable the soil to retain moisture much better and put it in much better condition for cherry growing than it would otherwise be.

"I would set the trees about 18 feet apart each way and cultivate them thoroughly for at least four or five years. I find that it will pay to cultivate after the trees begin to bear, although it has been the practice of most cherry growers to seed to grass after three or four years. Cherries are benefited and increased in productiveness just as much by cultivation as apples or any other fruit. I think one reason why farmers and fruit-growers do not grow more cherries is that they are usually planted along fence rows and in other undesirable locations, where they are allowed to take care of themselves. Under such conditions the trees make a poor growth and bear a crop of cherries every three or four years and are called a failure. If we would plant and care for a cherry orchard as we do our apple orchards, it would not be long until we would begin to realize the importance of the cherry not only as a desirable fruit for family use, but also as a market fruit.

"I prefer fall planting for cherries. They seem to make a better growth the first year, when planted in the fall. I do not advise the planting of many varieties of cherries. First I would plant the Early Richmond for an early. I would also plant the English Morello and Dyehouse. The Montmorency also does fairly well here, and is almost as popular as the Early Richmond. It is a very popular variety for canning purposes."

NOTES.

We have a newspaper clipping telling of some big peaches which D. M. Ellis, Bridgeport, Pa., one of the Fruit-Grower family, marketed this year. Mr. Ellis weighed four peaches which weighed 35¼ ounces lacking half an ounce of two pounds and a quarter. They were of the Globe variety. Trees bearing their second crop averaged four baskets to the tree, and the fruit being of such fine quality, good prices were realized. It pays to raise good fruit, and the Fruit Grower family can be depended on to do this.

F. B. Lehman, Victor, Colo., writes: "Inclosed find $1 for renewal of my subscription for three years. Think I would have to have the Western Fruit-Grower if it cost $1 a year. I find more practical information in it than I ever read in all other so-called fruit papers combined."

Nursery Catalogues

Now is the time to begin to think about and to plan for your next season's catalogue. A good catalogue is your best salesman, and good work costs no more than cheap, slipshod printing, if it is done at the right place.

The Western Fruit-Grower printed many very neat catalogues last season, and is better prepared this year than we were a year ago. Let us figure with you on your catalogue, as well as all other printing, and we may be able to not only save you money, but give you better work than you have had heretofore.

We have some new ideas in catalogue printing which we will be pleased to explain to those interested. Write us for prices on any kind of printing.

It takes time to prepare and print a good nursery catalogue—begin now, take the matter up with us at once, and let us help you get out a good one for next season.

WESTERN FRUIT-GROWER

ST. JOSEPH, MISSOURI.

Watch Your Date

The date on which your subscription to the Western Fruit-Grower expires is printed on the address slip on your paper, or on the wrapper, if your paper arrives in a separate wrapper.

Look at it, and if your subscription is now due or past due, renew at once. Fifty cents is a small item to you, perhaps, but the aggregate amounts to considerable to us.

Examine the date on your paper, and send 50 cents today for renewal. If you want to pay for three years in advance, send $1.00 for the three years. This will make the net cost only 33 1-3 cents a year—less than 3 cents a copy. Attend to this today.

The Western Fruit-Grower

ST. JOSEPH, MO.

Concrete-Cement fence posts, almost as cheap as wood; last 200 years; never rot. Full instructions about making moulds, mixing, moulding, also building blocks, and three different ways of making cement posts for 50 cents. JOHN McDANIEL, Malta, Ohio.

Telegraphy Free car fare to school; positions secured; catalogue free. TWIN CITY TELEGRAPH SCHOOL, Uhrichsville, Ohio.

35,000 Apple Trees

One and two year; very cheap; all leading varieties. You will find my stock cheapest in price, but highest in quality. Try me with an order. T. J. ANDERSON, Temple, Ga.

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New Book, all about Nuts. Price, 10 cents.

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VINCENNES NURSERIES

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We offer the following carlots for fall, 1902: Apple, 2 and 3 years; Cherry, 1 and 2 years; Peach, 1 year. Also good assortment of Standard and Dwarf Pear, Plum, Snyder and Early Harvest B. B. R. C. Plants, Carolina Poplar, Elm, Soft and Cut Leaved Maples, Shrubs, etc.

Broome Bros. WHOLESALE and RETAIL Nurseries

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We have a nice line of trees carefully grown and propagated from bearing trees that consist of the leading varieties of Apple, Peach, Plum, Cherry and Pear, that we will sell cheap. Correspondence solicited. Mention Western Fruit-Grower when writing for prices.

BROOME BROS., McLoud, O. T.

General Farm Papers

The Western Fruit-Grower frequently has calls for papers which are devoted to general agriculture. Therefore we have arranged a clubbing list, from which our readers may select the one which suits them best. We believe every paper listed is worth more than the subscription price. We quote regular subscription price of each paper, and also the price when it is taken in connection with the Western Fruit-Grower.

	Reg. Price.	Both Papers.
Farm and Ranch, Dallas, Tex....	$1.00	$1.25
Practical Farmer, Philadelphia..	1.00	1.00
Ohio Farmer, Cleveland, O.....	.60	1.00
Rural New Yorker, N. Y. City..	1.00	1.25
Iowa Homestead, Des Moines..	1.00	1.20
Live Stock Indicator, K. C.....	1.00	1.20
Wisconsin Farmer, Madison....	.75	1.00
Poultry Farmer, Des Moines....	.50	.70

Give name and address plainly in each case.

WESTERN FRUIT-GROWER, St. Joseph, Mo.

Poultry Department

Buy Your Stock Now.—Don't wait if you want to buy good stock at low prices, readers. We give below some of the advantages in buying birds now:

1. The breeder has a large stock on hand to select from.

2. He has more birds than he can accommodate and will "thin out" at a sacrifice.

3. As business is dull at this time of year, he can do a better part by you.

4. If he is compelled to keep his stock over until spring, he will add the extra epense and if eggs are in demand, he will not sell at all.

5. In the spring his yards are mated up and the breeder will not break his matings.

6. Hens or pullets of any breed are seldom to be had in the spring.

7. By buying young birds now you may get the best, as the best birds cannot well be selected until they are matured.

8. Cockerels are in excess now; you cannot appoint a better time to select them than the present.

Green Bone.—To those not owning a green bone and vegetable cutter we would suggest that now is the time to buy one. Your young stock should be fed animal food in the shape of green cut bone. If you are skeptical of the many advantages to be derived by feeding green bone, take a hen with her chicks and feed them an allowance of cut green bone and another brood, feeding them the ordinary feeds, but feed them no meat, and note the progress made by the bone-fed birds. You will be able to note the value of the animal food in ten days' time, and its use should then be continued throughout the life of the bird.

Less than 30 per cent of the poultry men in this country are able to mature pullets in this country to lay in October or November. A flock of thirty pullets will return the price of a green bone cutter in less than one season. These are dollar facts and hard to digest, but the experience of the poultry men the world over and the cheapest piece of experience is to accept the advice of the oldest and practical breeders of the country.

We do not advise feeding soft feed to excess. We should remember that nature provides all fowls with a gizzard whose object is to grind grains in their natural state, reducing foods that are required for the growth of the bird. Next to poor brooders and lice, sloppy feed kills more chicks than any other cause.

Questions and Answers.

Q.—My hens won't lay. Can you give me the cause and a remedy?

A.—No doubt your hens are all right. After a hen begins her moult it takes her quite a time to get in laying condition. Perhaps you are feeding a little heavy. Sometimes people treat their hens too good. See that they are kept busy scratching.

Q. I am a beginner, but intend raising everything used and expect the first year to raise seven thousand chicks and five thousand ducklings. How shall I build my plant for this? Expect to raise turkeys and geese on a large scale as a side issue.

Yes, here are the two extremes of interest and action in the poultry business, each of which is met in a reply to such an inquiry as the foregoing. The enthusiasm of inexperience and the apathy of indifference are the boundaries. The person who makes such a break as the above with no experience with turkeys and geese as a side issue is very apt to come to grief in a short time. We would suggest that you aim to raise 700 chicks and 200 ducklings the first year. Go slow! Do not become rich too soon. Subscribe for several good fruit and poultry journals.

Practical Pointers.

We believe if each individual poultry breeder would carefully study and notice the needs, wants and demands of their various birds and feed and care for them as their experience taught according to the season, there would be far less complaint of disease, unprofitableness, etc.

A white bird is always better for market than a dark one.

Pure water, solid grain, fresh air and clean quarters. Remember these are links in your chain.

The poultry business is a business. It must be developed. It can not be built in a day, a month or a year.

Do not tolerate laziness in your flock. It will certainly work disaster. Keep them busy from morning until night.

The moment a fowl is taken sick, remove it to separate and dry quarters, no matter how slight the ailment.

Corn is the best fattening food and the poorest egg producing grain that we have. You cannot grow fat and eggs on the same bird at the same time.

Building nests in a hen house is a serious mistake. All nest boxes should be single and loose so that they can be readily taken out, thoroughly celaned and whitewashed.

Fowls do not require as much room in winter as they do in summer, and small quarters will answer nicely if only kept clean, is well lighted and gets the sun at least a portion of the day.

For frosted comb, mix two parts glycerine and one part turpentine and rub the affected parts; a few hours later apply sweet oil. This treatment will generally effect a cure if begun early.

If breeding ducks are carefully housed at night and nest boxes placed where they can use them, they will readily avail themselves of the privilege. It does not pay to let them lay anywhere.

When buying an incubator, do pray keep clear of the cheap john machine if you wish success. Buy standard makes that are used generally by poultrymen. The same with brooders and brooding systems.

Pekin ducklings twelve weeks of age will weigh eleven to twelve pounds per pair, but should be killed when about ten weeks of age or the pin feathers will begin to shoot, then they will have to drop over until they are sixteen weeks of age.

Men establish different enterprises, spend thousands of dollars for stock, hundreds of dollars for advertising and feel rejoiced if at the end of the first year they come out even and if in the second year they make interest on their investment they are satisfied. Yet let these same men buy land and start a poultry and duck farm, and if they do not realize an enormous interest at once they grow tired and give up in despair.

Nowhere can poultry be raised so cheaply and advantageously as on the cheap lands throughout the Southern and Western states and yet this branch of business has been most sadly negelcted and thousands of the southern people indulge in the delusion that there is no money in poultry. One great fault we have found with the southern people is they are afraid to risk money in any enterprise.

A prolonged period of sexual activity on the part of the male may also lower the constitutional vigor of the progeny.

It has been noticed that when a hen produces from 30 to 40 eggs in succession without rest, those laid last are less likely to contain vigorous germs on account of long continued reproduction.

When it can be done it is best to build your houses to front the south or southeast so as to get the sun's rays the entire day. Nothing will supply its place when eggs are desired in winter.

Allow the hens to run together after the breeding season is over. By separating the males from them it gives them a rest and pays for your trouble. What few eggs they lay from now on are all right for table purposes.

A good article to use in the drinking fountain for your moulting hens is tincture of iron. It is very handy and cheap and should be accessible, especially when the birds are going through the moult. It is strengthening, palatable and works like a charm in its way as a stomach tonic. A tablespoonful of the tincture to a quart of drinking water is sufficient. Can be had at any drug store.

In France when poultry is dressed, the waste products are scrupulously saved. The feathers are carefully selected and assorted and when well dried are sold to dealers. The intestines are boiled and the fat skimmed off, whcih is sold separately. The intestines are then ground up as food for poultry and the liquor is fed to hogs. The combs and kidneys are sold to pastry cooks, the first for decorating and the latter for flavoring pies. The head, neck and feet are sold to hotels, restaurants, etc., for flavoring sauces, or boiled down to make chicken jelly.

If you are going to buy an incubator, we would say do not purchase an old second-hand machine; buy a new, up-to-date one and you then have the manufacturers who are interested in the success of their machines, to back you. W. P. LAIRD.

Oil City, Pa.

Cheap Lands Desirable Locations Pleasant Homes

Low-priced fertile lands adapted to diversified agriculture and in a section of country free from extremes of weather; near to the best markets and unexcelled transportation facilities, good schools, congenial society, can be secured on easy terms along the line of the

SOUTHERN RAILWAY AND MOBILE & OHIO RAILROAD

Excellent location for general farming, dairying, trucking, fruit growing and stock raising.

THE SOUTHERNFIELD and other illustrated publications giving information of advantage to farmers, manufacturers and visitors, are forwarded upon request.

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CURES THE KIDNEYS

Kidney disease is the enemy we have most to fear as a result of the feverish haste of modern civilization. It is a treacherous enemy working out its deadly effect under cover of such trifling symptoms as headache, slight but persistent backache, dizziness, heart-throbbing, weak digestion, constipation, frequent or diminished passage of urine, scalding urine, sediment in urine.

PRICKLY ASH BITTERS

is a kidney medicine of the greatest merit. Its action is healing and strengthening, quickly relieves aching or soreness in the back, checks wasting or decay of the kidneys, corrects the flow of urine and through its excellent cleansing and regulating effect in the stomach, liver and bowels it speedily restores the strength and ruddy glow of vigorous health.

SOLD BY DRUGGISTS,

PRICE, $ 1.00.

GET A DANDY

BUSHELS OF EGGS follow the feeding of cut bone. The **DANDY Green Bone Cutter** is the simplest, fastest and easiest bone cutter made. Price $5.00 up. Sold on 15 days trial. Satisfaction or no sale. Send for price book and *Special Proposition*.

Stratton Mfg. Co., Box 56, Erie, Pa.

Cheapest and Safest Shipping Package.

Good Strong Basket for shipping eggs. The Burlington Basket. The special sizes and shapes of these baskets have made them a big favorite with shippers. We guarantee them to be strong and well made. Write to-day.

One Setting size 40c per dozen.
Two " " 45c " "
Three " " 60c " "

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Can be made at the actual cost of wire. Over 100 Styles, and 50 to 70 rods per day, Horse-high, Bull-strong, Pig and Chicken-tight.

THE DUPLEX MACHINE makes it. The Machine is Automatic, simple in construction, runs easy, works rapidly. **Sent on Trial.** Plain, barb wire and Gates at wholesale prices. Catalog free.

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FOUR FAST TRAINS

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Send 6 cents postage for NIAGARA FALLS ILLUSTRATED.

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MOTHERS Do you have to dry your children's bedding every day? If so, save this extra work by giving them ENURESINE.

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TREE PROTECTORS

will protect your trees from rabbits, mice and borers; will also protect the stems from sun scald, and can be left on during the summer, and will not injure the tree.

The cut represents our Tree Protector after having been applied.

Same are made of veneer, and are pronounced the cheapest and easiest applied of anything ever used.

Write for prices.

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Apple Trees

Wholesale and Retail

Full assortment, all grades. General assortment of other stock, shade trees, evergreens, etc. Apple specialties, Moyer's Prize, Winter Banana, Downing Winter Maiden Blush, Bismark, etc. Send list for prices. THE LAKETON NURSERIES, Laketon, Ind. G. N. MOYER, proprietor.

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Want every reader of the Fruit-Grower to have one of their catalogues. Write now. If we had your address we would write to you. We have the "Sweepstakes" in trees for the orchard.

Woodview Nurseries

Box 102 Uriah, Pa.

OLDEN NURSERY COMPANY

OLDEN, HOWELL CO., MO.

NEARLY A HALF MILLION APPLE AND PEACH TREES

for Fall, 1902, and Spring, 1903, trade. Prices right and stock the best. All propagation done from bearing trees. Price list will be ready August 1. Entomologist certificate will be furnished with every order. Our leaders are Ben Davis, Jonathan, Ingram, York, Elberta, Emma, Salway and Family Favorite. Address

S. R. Hammond, Mgr. Olden, Mo.

We Pay Freight

First class nursery stock. Prices right. Get our catalogue. A complete list of Apples, Japan Plums, Pears, Blackberries, 90,000 Carolina Poplars, all sizes; Roses, Strawberries, Garden and Field Seeds, Seed Potatoes. Agents wanted to sell our trees. Pay commission weekly. Address J. M. T. Wright Nursery Co., Portland, Ind., Box B.

HOYT'S TREE SUPPORT

is far superior and much cheaper than wooden preps. The limbs are made to support each other. Neat, indestructible, permanent.

WOODEN PROPS ARE IN THE WAY ALL THE TIME—THESE, NEVER.

We guarantee perfect satisfaction. Sent C. O. D., expressage prepaid, for $20 per thousand. Circulars. NOVELTY FRUIT CO., Watsonville, California.

Canning Machines

SPECIALLY SUITED FOR HOME CANNERS.

Send for circular describing small and large canning outfits. Hundreds of them in use. Write at once to

M. FOERG, - Meridian, Miss.

Two New Strawberries

We will introduce this coming season two new strawberries. They will become leaders when known. For circulars, address HUBACH & HATHAWAY, Judsonia, Arkansas.

ORNAMENTAL LAWN FENCE

Save 20 to 25 per cent. by buying direct from manufacturer. MADE OF STEEL. CHEAP AS WOOD. Special Prices to Churches, Cemeteries and Large Parks. 32 page Catalog free. COILED SPRING FENCE CO. Box 418 Winchester, Ind.

Express Rates on Plants.

The subject of express rates on plants is one in which strawberry growers are interested and one of which I believe there is considerable ignorance.. Readers of catalogues are accustomed to a sentence something like this, "We have a special rate on plants, 20 per cent lower than the regular rates." That is misleading. I do not believe a plant grower in the country has a special rate that every other one may not have if he claims it. I have known one or two instances where growers were not aware of their rights and agents through ignorance did not give them the special rate.. The plant rate amounts frequently to a greater reduction than 20 per cent. As most people know, express rates are based on the rate for 100 pounds and are "graduated," that is, there is a scale by which a light package is charged for at a much higher rate proportionally than a heavy one. The most important part of the concession to plant growers is that plants "fully boxed or crated" go at "pound rates" less 20 per cent. By that is meant that the "graduate" is not in effect on plants so packed, or, in other words, that the charge on a crate of plants weighing twenty pounds is only one-fifth that on 100 pounds instead of one-third or two-fifths as in the case where the graduate scale is in effect. . In addition to having advantage of pound rates, plants have the still further reduction of 20 per cent if they are fully boxed or crated. If they are packed in baskets they do not have the 20 per cent. reduction, and if they are put up in paper or burlap packages they go as ordinary merchandise. There is, however, a minimum charge of 35 cents for each express company handling the package which takes off much of this reduction in the case of small crates or baskekts of plants.. For example, where the rate is $3.00 for 100 pounds, the "pound rate" for ten pounds is 30 cents. The 20 per cent reduction would reduce this to 24 cents, but the minimum charge is 35 cents if one company carries it or 70 cents if it passes through the hands of two companies. In case one company carries it but a short distance, where the regular merchandise rate would be less than 35 cents, the merchandise rate prevails. To get these rates, the grower must prepay the charges or guarantee them. Comparatively few plants are sent prepaid, but I think it is the custom of nearly all growers to guarantee charges, thus entitling the purchaser to these reduced rates. Except in cities, most of the express agents are the railroad agents and many of them are not very familiar with express classifications. On that account plants are sometimes sent, through the ignorance of agents, at regular merchandise rates. Where a purchaser receives plants and the express charges appear exorbitant, it is well to request the agent at the destination to look up "plants" under the head "General Specials" in the classification. He can then see whether there has been an overcharge and it can generally be remedied at once. This would better be done before the charges are paid.

WM. S. CRAWFORD.

HOW TO CARE FOR HOGS, CATTLE, HORSES AND POULTRY IN WINTER.

We have just received from the Ripplcy Hardware Company, Grafton, Ill., a very neat catalogue of 72 pages. This book is a credit to the above firm. It is a complete catalogue describing and illustrating in detail the many lines they manufacture; also explains the advantages and how much can be gained during the fall and winter months. They are the largest manufacturers of Feed Cookers and Poultry House Heaters in the United States or Canada, making six different patterns and twenty sizes, which range in price from $5.00 to $46.00. We congratulate the above firm for the wonderful advancement they have made in the past six years. They have been gradually increasing their factory space, and now occupy eleven floors at Grafton, Ill., with a factory at London, Ontario, Canada, which supplies their Canadian trade.

The success of this firm is due to the fact that they manufacture an excellent line of up-to-date necessities, such as Feed Cookers, Whitewashing Machines, Sprayers, Spraying Mixtures, Tanks, Troughs, Lice Killer, Fly Remover, etc., all articles of merit.

Their catalogue is full of testimonials from leading breeders and fruit growers that use and indorse their articles. As the season for using Feed Cookers will soon be at hand, we are pleased to recommend their line to our readers, which they sell under a guarantee or refund money. See ad on page 10 and mention Western Fruit Grower when writing for catalogue, and special prices will be quoted.

A FREE TRIAL PROPOSITION.

We desire to call our readers' attention to the free trial offer made in another column by the Stratton Manufacturing company, Erie, Pa., on the Dandy Bone Cutter. This standard machine has been before the public for nine years, and many of our subscribers have used it with perfect satisfaction. Such as have not, now have the opportunity of trying one for fifteen days before they pay for it. The company requires no deposit in advance. All you have to do is to try the Dandy and then decide whether you want to keep it or not. We need not urge upon poultry raisers the importance of cut green bone as a poultry food; it has the advantage of costing almost nothing and certainly it is one of the greatest egg producers in the world. It will pay you to "get a Dandy."

Farms For Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, or farms wanted, which are intended for this column, will be inserted for 1 cent a word, each insertion. The address must be counted as a part if the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send one cent for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

FOR SALE—Nursery, fruit and poultry farm of 80 acres; good house, three poultry houses and yards 75x150 feet; orchard, 800 apple trees, 600 peach trees, 50 cherry and small fruit; nursery, 6,000 apple, 6,000 peach trees, budded and seedling; small fruit, forest trees and shrubbery; grand chance for the right man. No nursery within 25 miles; $3,500. L. B. Hamilton, Narka, Kans.

FOR SALE—Well improved 40 acre farm, also stock, tools, etc., very cheap; near railroad and school; climate, soil, etc., right; splendid chance to acquire good home for little money. Investigate this. Reasons for selling, physically unable to continue farming. For particulars, address box 10, Norwood, Wright county, Mo.

NURSERY stock, grounds and all, for sale. I have four acres adjoining corporate limits, city water and electric light, brick house 6 rooms, barn, stables, outbuildings, greenhouse, fruit trees, lot of nursery stock; location good; plenty demand for stock unlimited. (Am 73 years old reason for selling.) A small amount of cash will handle this. Particulars, address box 186, Larned, Kans.

FARM FOR SALE—Estate land for sale; choice tract of 377 acres, $5,665; easy terms; Taneyville, Mo. Address Mrs. Jonas Miller, Wapello, Iowa.

FOR SALE OR EXCHANGE—Bearing five acre orange grove, one mile railroad town, 250 miles south of Jacksonville, Fla.; five-room house and barn. Had over four hundred boxes last year. Very cheap. H. F. Davis, Holland bldg., St. Louis, Mo.

FOR SALE—1,000 acres Georgia peach land; terms easy. T. J. ANDERSON, Temple, Ga.

FOR SALE—Ozark fruit farm of 80 acres. One and one-half miles from good railroad town of two thousand population. Sixty acres in cultivation, well fenced with board and wire. Three thousand apple and peach trees, half of which beginning to bear. Also pears, plums, cherries and small fruits.

Three never failing springs, and good well at house.

Six-room modern cottage, stable, two poultry houses, yards, etc. Other business requires all our attention. Address Mountain Grove Nurseries, Mountain Grove, Mo.

FRUIT FARM FOR RENT—22 acres, 600 fruit trees, about 100 cherry and pear trees in bearing, balance four years old; house of three rooms, barn, cellar, cistern, well; 2 miles from city of 5,000; rent, $100 per year; 10 acres in cultivation, balance pasture. E. R. Smith, Fairfield, Iowa.

Good Government land under co-operative irrigation. For particulars address COLORADO CO-OPERATIVE COMPANY, Pinon, Montrose Co., Colorado.

FRUIT FARMS AND ORCHARD LANDS

Missouri and Arkansas Fruit Lands offer best inducements to fruit growers and speculators. My list includes commercial orchards up to 20,000 trees, also big tract of fruit lands especially adapted to fruit culture, at from $3 to $10 per acre. Some fine orchards near Kansas City, Mo. Write for list telling what you want in first letter. Map of Missouri or Arkansas, 10c, stamps or silver. Lott "The Land Man," 127 W. 8th, Kansas City, Mo.

Going West This Autumn?

If so, you should travel over the

St. Joseph & Grand Island Railway

Excursion and Homeseekers' Tickets on sale to all points. Ask about them.

The St. Joseph & Grand Island Railway passes through one of the best fruit sections in the world, namely, Northwest Missouri, Northeast Kansas, Southeast Nebraska. For information concerning time card, freight rates, locations for business enterprises, etc., address

S. M. ADSIT,
General Freight and Passenger Agent,
ST. JOSEPH, MO.

Where to Locate?

Why, in the territory traversed by the

LOUISVILLE & NASHVILLE RAILROAD

THE

Great Central Southern Trunk Line

IN

KENTUCKY, TENNESSEE ALABAMA MISSISSIPPI, FLORIDA,

WHERE

Farmers, Fruit Growers, Stock Raisers, Investors Manufacturers, Speculators, and Money Lenders

will find the greatest chances in the United States to make "big money" by reason of abundance and cheapness of

Land and Farms, Timber and Stone, Iron and Stone Labor—Everything!

Free sites, financial assistance and freedom from taxation for the manufacturer.

Land and farms at $1.00 per acre and upwards, and 500,000 acres in West Florida that can be taken gratis under the U. S. Homestead laws.

Stock raising in the Gulf Coast District will make enormous profits.

Half fare excursions the first and third Tuesdays of each month.

Let us know what you want, and we will tell you where and how to get it—but don't delay, as the country is filling up rapidly.

Printed matter, maps and all information free. Address

R. J. WEMYSS,
Gen'l Immigation and Industrial Agt.
LOUISVILLE, KY.

Farming in Colorado Utah and New Mexico

The farmer who contemplates changing his location should look well into the subject of irrigaton. Before making a trip of investigation there is no better way to secure advance information than by writing to those most interested in the settlement of unoccupied lands. Several publications, giving valuable information in regard to the agricultural, horticultural and live stock interests of this great western section have been prepared by the Denver & Rio Grande and the Rio Grande Western, which should be in the hands of all who desire to become acquainted with the merits of the various localities. Write S. K. Hooper, G. P. & T. A., Denver, Colo.

THE INDIAN TERRITORY

The passage of the Cherokee Treaty on August 7th calls direct attention to one of the most fertile sections of the United States. Prosperity in the Southwest is an assured fact, and the development of the Indian Territory and the consequent expansion in trade and wealth is but a question of time. In a few years this section, so long neglected, will be as well threaded with railways as is Iowa or Minnesota. Its fitness for close settlement, comparative certainty of rainfall, and natural resources make it an attractive goal for Western lines. The marvelous fertility of the soil is shown in the fact that the Government cotton report for 1901 gives the average lint production of the Territory per acre at 214 pounds exceeded only by that of Louisiana, 260 pounds, and far in excess of the world's average, 169 pounds. The cotton industry alone is of much importance in the Territory's future.

White settlers are pouring into the Territory, unwilling to wait for the formal opening of the farm lands. They are occupying the present town sites, and are urging the platting of more. Banks are being started, new business houses opened, more newspapers established, and every feature of the development of a virgin country is going on. The coal mines are being developed rapidly, and other mineral riches will soon be brought to the surface. The immigration is of the better class—men who have sold out in Illinois, Iowa and Wisconsin and are seeking for new homes which can be bought cheap and made into rich holdings.

The Missouri, Kansas & Texas Railway is the pioneer railway line of the Indian Territory, and along its line is located a majority of the larger towns.

For more detailed information, write James Barker, Gen'l Pass'r Agent, St. Louis, Mo., for a copy of pamphlet, "Indian Territory." Low rate excursions on the first and third Tuesdays of each month.

STARK BRO'S NURSERIES & ORCHARDS Co Louisiana, Missouri.

Capital Stock $1,000,000.00—FULLY PAID UP.

The enormous increase of our business during the last three years has compelled us to enlarge Offices, Packing-houses, etc., and increase Nursery Plants at Louisiana and Starkdale, Mo., Huntsville, Ala., Dansville and Portland, N. Y.; our orchard interests have also assumed huge proportions, all of which necessitated a proportional increase of Capital Stock.

Another New Packing House, 132x240 Feet, Now in Course of Erection.

APPLE: The largest and FINEST stock of both 1-yr. and 2-yr. trees ever grown in the U. S. We are headquarters for all the leading market sorts and **SOLE OWNERS** of **BLACK BEN DAVIS** (Registered Trade-Mark No. 38,556) and **CHAMPION** (Registered Trade-Mark No. 32,184), the **TWO GREATEST MONEY-MAKERS** known to-day.

PEAR, Standard: Leading sorts, including Fame, Alamo, Ozark, Kieffer, Lincoln, (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others **—extra fine trees.**

PLUM: A Full stock of all BEST varieties, including Gold, Climax, Sultan, Shiro, America.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, Early Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce; orders should be placed at once.

APRICOT: Sunrise and **Superb,** the only two varieties worth planting east of the Rocky Mountains. Also American Seedling, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading Sorts for home use and market—**London Market** Currant, Houghton Gooseberry and **Cumberland** Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

ELBERTA PEACH: Planters of **ELBERTA** should place orders at once as the call for this **greatest of all market peaches** is unprecedented. All the leading varieties of Peach are in great demand and only our immense stock of several million trees enables us to still offer Elberta and other leading market sorts.

☞ Owing to the great scarcity, planters will find it to their advantage to purchase their Elberta of **thoroughly responsible** nurseries only. To our personal knowledge assorted peaches are being purchased by many irresponsible parties with which **to fill Elberta orders.**

BUDDED LILACS: Superb sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every dooryard, should have them. **Perfectly hardy.**

ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece-root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

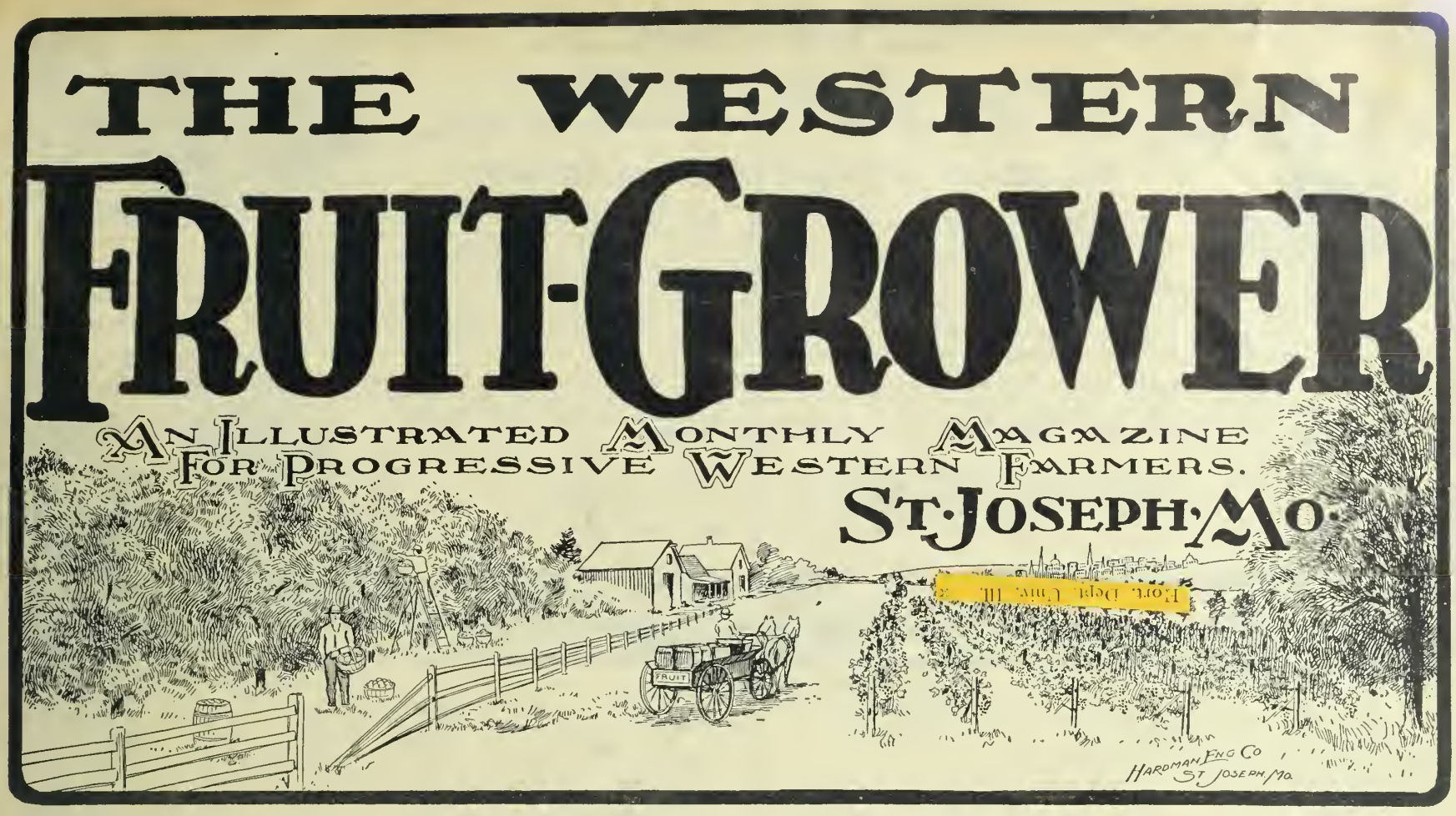
GRAPE---An Immense Stock of Superb Quality

For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines, for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivation, we are able to reduce prices materially. **We are ready to meet all competition** in both quality of stock and **low prices.** Large orders for vines of nearly all varieties grown by us can be shipped from either Portland, N. Y., or Louisiana, Mo.; small assorted orders will be filled from Louisiana, but with the fine N. Y. grown vines—we having discontinued growing grape elsewhere. Leading varieties are Moore's Early, Diamond, Niagara, Concord, Brighton, Worden, Delaware, etc., all sorts of **established** value in all markets. For the home vineyard we grow the sorts of finest quality, covering the entire season from early to late. **Currants** and **Gooseberries** grow to perfection at Portland; we have nearly a million Houghton Gooseberry, London Market Currant, and other best sorts.

One-year grape vines, showing the remarkably fine system of roots produced at **Stark Grape Nurseries,** Portland, N. Y.

We PAY FREIGHT on Orders of $12 and Over, Box and Pack Free, Guarantee Safe Arrival, GUARANTEE SATISFACTION. Write for Stark Fruit Book, Price List, etc.—free upon request.

Volume Twelve NOVEMBER, 1902 Number Five



APPLE CARNIVAL AT GLENWOOD, IA.

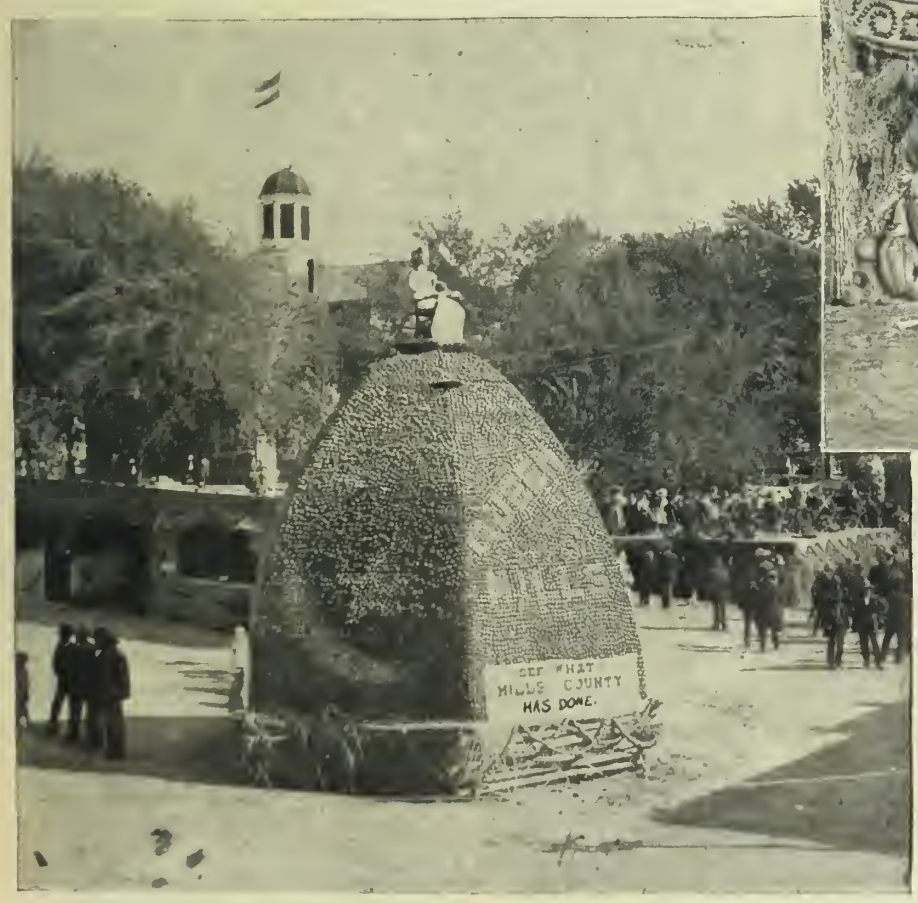
Mills County, Iowa, is one of the best apple counties in the United States—and that means in the world. Fruit raised there is noted for its quality, its beauty and keeping qualities, and is always in demand. The soil is the peculiar loess formation so familiar along the Missouri River hills, which is known to be most extraordinary soil for fruit culture. Glenwood, the county seat of Mills County, is in the midst of the apple belt, and, to celebrate the winnings of apples from this region in the exhibitions of the country, an apple carnival was held several years ago, and has since been repeated when the apple crop is good. This year the crop is good, and a representative of the Western Fruit-Grower, with a camera, visited Glenwood and some of the neighboring orchards at the time of the apple carnival this year.

The apple exhibit at this fair is naturally the center of interest. It was installed in a temporary building decorated with apples and red and yellow bunting. There were about 800 plates on exhibition, making a most excellent showing of fruit. The principal exhibitors were R. M. Trout, Frank White, W. J. Davenport, J. P. Jackson, Wm. Dyer, S. Gillilland, A. C. Sabin, F. P. Bradley, F. L. Hester, S. H. Peters and G. W. Sowens. The latter exhibited for the Institution farm and had the largest and best single exhibit, winning the first premium. Mr. Bradley won second premium and Mr. Trout carried off third money.

Plate premiums were given on the following varieties, which are the leading ones grown: Ben Davis, Fameuse, Grimes Golden, Janet, Jonathan, Roman Stem, Winesap, Maiden Blush, Wealthy, York Imperial, M. B. Twig, Missouri Pippin, Wolf River, Minkler, Willow Twig, Rambo, Rome Beauty, Stark and Fulton.

Eighty-two people brought or sent apples for exhibition. Not many state fairs can show apples from an equal number of orchards. There were very creditable exhibits of various grains and vegetables, principally corn, potatoes and pumpkins, as well as of fruit. Center township had a large exhibit at the south entrance to the park. It compared favorably with the county exhibits at state fairs. A box of ripe, home-grown strawberries attracted much attention. The carnival colors were red and yellow, the color of ripe apples, and everywhere they were in evidence. A huge dome or pyramid about twenty-five feet high was built and entirely covered with apples, in which designs and inscriptions were worked. On the top was seated a white-robed, queenly figure, holding in one hand a huge apple. This was to typify "Queen Mills." Inside the tower was a reception room, with four ladies in charge. On the walls were displayed over a thousand premiums and diplomas won by Mills County apples. These trophies justify the pride of Mills County horticulturists. We present a view of this figure and the entrance to the Center Township exhibit.

ENTRANCE TO TOWNSHIP EXHIBIT, GLENWOOD CARNIVAL.



APPLE PYRAMID AT GLENWOOD CARNIVAL.

The eastern half of Mills County is rolling prairie, and is devoted to general farming. The level bottom of the Missouri River comprises the extreme western part. Between these two district lie the famous "apple mountains" of Mills County. They begin with the bluffs of the Missouri on the west and extend east five to ten miles. The soil of these high hills is a deep clay loess. Hard-wood forests originally covered most of this land, but comparatively little native timber now remains. The counties north and south of Mills are very much the same typographically, and are doubtless just as well suited to orcharding.

A dozen years ago there was a great boom in orcharding in Mills County. A few years of good yields and good prices led many to believe that a fortune awaited all who would embark in the apple busness. Thousands of acres were planted to apples in the confident hope of reaping rich rewards.

A succession of poor fruit years followed and many fond hopes failed of realization. The result was financial ruin for the heaviest planter, Judge John Y. Stone. Successive plantings were made on a magnificent scale until the Stone orchards aggregated 800 acres, the largest in Iowa, and one of the largest in the world. Two years ago these were sold to pay the heavy mortgages which covered them. Mr. Stone's failure was due to lack of capital to carry on so great a work.

The Stone orchards were divided and sold to different parties. F. P. Bradley bought 320 acres, which is now the largest orchard in Iowa. The writer visited this orchard, which lies a mile west of Glenwood, and found a fine lot of trees and everything in com-

From Ward's to You

The Ideal System of Merchandising

Buy your supplies direct and save the usual middlemen's profits. Are you so rich that you are not interested in making your money go as far as possible? We can save you $1.00 out of every $5.00 you spend. Our goods are purchased direct from the manufacturer and sold to our trade at practically wholesale prices. Over two million people are now patronizing us and buying everything they use at a saving of 15 to 40 per cent over the usual prices. These people are not going it blindly—they are the thinking people who know that a dollar saved is a dollar gained.

Our $2,500,000 stock of general merchandise is illustrated and quoted in our 1,100-page catalogue No. 71, just from the printers, and it will be sent anywhere upon receipt of 15 cents to help pay the postage. Write to-day, enclose 15 cents in stamps or coin and ask for Catalogue and Buyer's Guide No. 71. Over 120,000 people did this last month.

Montgomery Ward & Co., Chicago

"The House That Tells The Truth."

Write for Catalogue of Monte Carlo Coats for Women

15

paratively good shape. Several thousand bushels of apples had been picked and were being marketed. But Mr. Bradley could give no estimate of the size of the entire crop.

A remarkable feature of the Stone orchards is the close planting. Many are planted 12x20 feet and some even closer. The Judge was a firm believer in the plan of double planting a nd cutting out when the trees began to crowd. The trees are badly crowded now in the closer plantings, the limbs being interlaced and getting the fruit out a difficult matter. It was thought best to delay the cutting out of the "fillers" until they had borne at least one good crop, which they have not yet done. Judge Stone was a careful and painstaking planter, always insisting that everything be done just right. Sometimes an entire carload of trees would be thrown out because they were of inferior quality. In 1895 the Stone orchards yielded 40,000 bushels, although only 20,000 out of the total 120,000 trees were in bearing.

The second largest planter in the Glenwood district is Dr. F. M. Powell, superintendent of the State Institution for Feeble-Minded Children. Many acres which he had planted to apples were afterwards sold at a good profit. In this way, buying land planting an orchard and then selling at an advanced price, Dr. Powell managed to keep on a safe financial basis. Dr. and Mrs. Powell now own about 150 acres of apple trees. The varieties are chiefly Ben Davis, Jonathan, Grimes Golden and Missouri Pippin. These are the leading varieties in most of the Glenwood orchards.

Most of Dr. Powell's orchards were planted 16x24 feet, which he is convinced is too close. The weak trees are being taken out and not replaced. He says: "It is a mistake to plant apple trees on high clay points. They will not grow as well nor live as long in such a location. I have Jonathan and Grimes on east slope and they are full, while on the top of the hill and south slope they are no good.

"Cultivate early in the season and keep the weeds mowed later on, or sow to clover, mow and leave on the ground. Constant cultivation is not advisable. It is a good idea to turn hogs in an orchard. Of course it will not do to make a hog lot out of an orchard, but a few may be turned in with benefit We have 100 hogs on sixty acres.

"Trim the trees a little every year to keep them shaped up. We generally prune in the fall and winter. It is hard to find time in May and June, and it is doubtful if it is best to remove wood from a tree when it is in leaf.

"I believe in spraying, though I have unsprayed trees that bear better fruit than those which were sprayed. I once made the remark, 'If you can't get ahead of a worm you'd better quit the business of orcharding,' which remark has been widely quoted.

"The Duchess is a very profitable variety, I believe. It bears early and regularly and generally sells for 50 cents a bushel. I have 6,000 apple trees in one block, twelve to fourteen years old, and if they were Duchess I believe they would have yielded $15,000 to $20,000 worth of apples by this time. They would likely have borne six crops. I have seen Duchess bear ten years in succession. I expect to plant 2,000 of them in the spring.

"We should have a cold storage building here at Glenwood, to enable us to hold our apples for profitable prices. As soon as the buyers get all the apples in the fall the price promptly advances. I have only about 3,000 bushels this year, but I am selling them in small lots at good prices. Have 400 bushels of Grimes, part of which are here in cold storage.

"Boxes are undoubtedly better than barrels for handling apples, especially the finer varieties. I expect to get boxes made to order for Jonathans and Grimes and wrap in paper. Bushel boxes are too large for these varieties. Peck boxes would be more profitable. People would pay a higher price for Grimes if they were as well acquainted with it as they are with the Jonathan. I sometimes put a few Grimes in a barrel of Jonathans. An Oskaloosa orchardist sets boxes of Grimes in the stores for people to sample. This may be an expensive way of educating the public palate, but it would pay in the long run.

"The northwest offers a good market for apples. It would pay to ship a carload in bulk to a town and then peddle them around with wagons. I think of building a large apple cave next summer. It will be walled with rock, and by putting in a hundred loads of ice, apples can be kept for sixty days or longer in good condition."

Dr. Powell has had charge of the institution at Glenwood for twenty years. There are now 975 patients and 150 employees. On the institution farm there is an orchard of fifty acres, containing nearly 200 varieties. The trees are mostly twelve years old and were planted 20x24 feet. Waters Wonder is one of the newer varieties that has recently come into bearing. It is a fall apple the color of a Maiden Blush and the shape of a Gano. Another new va-

The Lee's Summit Star Nurseries

RAMBLER ROSES

Let them cover the clothes line posts, climb the porches, fences and make a thing of beauty of unsightly corners. The whole family of Rambler Roses is worthy, interesting and beautiful. The CRIMSON RAMBLER is the rose for everybody. No Home should be without one and the more the merrier. Perfectly hardy, vigorous and—but what's the use, all have seen and admired it and we have only to remind you at the proper time—NOW! We have a fine lot of strong two-year-old plants, field grown at 25 cents. The DOROTHY PERKINS is our last addition to our collection of Ramblers and it is simply grand, all that has been said of it and more. We have them, too, and will sell a few strong two-year field grown plants at a special price of 40 cents, if you mention the Western Fruit-Grower.

Our Blue Catalogue will tell you more about Rambler Roses and of other items that we grow. It is your fault if you are without a copy.

Plant Cherry Trees Now. We tell why and how in a four-page circular.

The Dutch Bulbs are here and we are planting our beds. Let us send you also a copy of the Dutch Bulbs that you may know how to plant them and then we will sell you the Bulbs.

When this reaches you we will be shipping trees every way and if you say the word, we will ship some your way and then you will know for yourself.

M. Butterfield & Son

Lee's Summit, Mo. Proprietors

VIRGINIA BEAUTY APPLES

THE BEST WINTER EATING APPLE ON EARTH

THEY ALL SAY IT IS BEAUTIFUL

OUR BOOK DESCRIBES IT

$1.00 WILL BUY
25 APPLE TREES OR
15 PEACH " "
15 PLUM " "
40 CONCORD GRAPES
500 BLACK LOCUST.
300 RUSSIAN MULBERRY
500 FOREST TREES.

ELLIOTT MARSHALL, BURLINGTON GEN. FGT. AGENT SAID AT THE ST. JOSEPH, MO. FAIR. "THE VIRGINIA BEAUTY IS THE MOST HANDSOME APPLE IN THE HALL. I WANT YOU TO BOOK ME FOR 100 TREES, THE BEST YOU HAVE"

WE PAY THE FREIGHT

OUR BOOK HOW TO GROW FRUIT

FREE

YOU OUGHT TO HAVE IT
WE WANT YOU TO HAVE IT
SEND FOR IT NOW

TITUS NURSERY NEMAHA, NEBR.

WESTERN FRUIT GROWER

riety is the Rainbow, a large, green-colored winter apple.

For many years the institution farm was managed by J. P. Jackson, the well-known horticulturist. Mr. Jackson has conducted one of the experiment station for the State Horticultural Society and has made extensive spraying tests, being one of the first to take up the work in this section. Mr. Jackson is a prominent worker in the Mills County Horticultural Society, and was president of the Southwestern Iowa society for two years. He has made many exhibits and done much to further the fruit industry of southwestern Iowa. Mr. Jackson resigned his position at the institution last spring and is now developing a fruit farm of his own.

One of the finest young orchards around Glenwood is E. Bradford's fifteen acres of Ben Davis and Jonathans. The trees are about twelve years old and are thirty feet apart each way. They bore their first good crop this year, averaging about four bushels per tree, though some yielded ten bushels. The orchard was seeded to clover last spring, which did so well that a crop of hay was cut this fall. The apples were being picked and barreled in the orchard at the time of the writer's visit, October 7.

C. H. Dyer's seventy-acre orchard is said to be assessed higher than and orchard in Mills County, being valued at $150 per acre. The trees are thirty feet each way, though some fillers have been put in between in the rows. Most of the trees were quite large and some were yielding several barrels each. The fruit was beng picked and barreled October 8. In one corner of the orchard there are several Keiffer pear trees, which were bearing a good crop of fine, large fruit.

Mrs. Smith McPherson, of Red Oak, has a sixty-acre orchard near Glenwood. The crop was sold for a lump sum this year. Seven Jonathan trees fourteen years old yielded 25 barrels. These trees were sprayed last spring. Three hundred Ben Davis, ten years old, averaged two barrels of No. 1 fruit per tree.

Space will not permit individual description of other orchards, but we present herewith a list of the largest orchards in the Glenwood district. There are forty orchards, containing from 10 to 320 acres each, an average of 46 acres, aggregating about 1,900 acres.

F. P. Bradley, 320 acres; F. M. Powell, 150 acres; H. W. Binder, 100 acres; M. J. Williams, 8 acres; W. J. Davenport, 80 acres; C. H. Dyar, 70 acres; J. M. Flickinger, 60 acres; J. F. Record, 60 acres; Mrs. S. McPherson, 60 acres; Mills County National Bank, 60 acres; State Institution, 55 acres; F. E. L. Hester, 50 acres; D. L. Heinsheimer, 50 acres; J. W. Murphy, 40 acres; A. B. Judson, 40 acres; Hinchman Estate, 40 acres; S. H. Peters, 40 acres; D. G. Jamerson, 40 acres; Wm. Lamb, 39 acres; W. F. Laraway, 30 acres; Wm. Coziah, 30 acres; J. W. McNight, 300 acres; G. A. Davies, 30 acres; Chas. Tipton, 30 acres; H. Knoefler, 25 acres; J. E. Scott, 20 acres; R. M. Trout, 20 acres; W. J. Howard, 20 acres; E. Starbuck, 20 acres; F. W. Ivory, 15 acres; E. C. Byers, 15 acres; S. Brice, 15 acres; E. Bradford 15 acres; F. Weatherhead, 15 15 acres; Saml. Reurd, 10 acres; C. E. Kretzmyer, 10 acres; Wm. Glasborn, 10 acres; Saml. Wright, 10 acres.

The price being paid for apples was A. J. Glasborn, 15 acres; B. E. Dean, $1.25 for Ben Davis and Missouri Pippin and $1.75 for Jonathan and Grimes Golden. A few Gano, M. B. Twig, Winesap, Iowa Blush and other odd varieties were being bought at the same price paid for Ben Davis. The Gano is considered a good apple, but growers and buyers have a poor opinion of Mammoth Black Twig. It scabs badly, is subject to bitter rot and is a poor keeper. This was not a Winesap year and very few were being marketed. The Janet was almost lost in the shuffle, though I saw some being packed at Tabor and Hamburg, 90 cents a barrel beng the price paid at the latter place.

A number of buyers were doing business at Glenwood. The competition was sharp and the buyers claimed they were paying more than the market would justify. The best Jonathans brought $2, and $1.30 was paid for some Ben Davis. At Shenandoah, where there was no competition among buyers, only $2 was paid for Ben Davis.

F. J. Allen has been buying apples at Glenwood for twenty years, and understands the business thoroughly. He said he did not believe there was any prospect of making money by holding apples for higher prices and that what he bought were being sold as fast as possible. The price received was $2 for Ben Davis and other varieties of that grade and $2.50 for Grimes and Jonathan. W. J. Davenport was getting $4 to $5 for best grade Jonathans. Mr. Allen says he can usually make more money in buying an orchard for a lump sum than by the barrel. Large lots were packed in the orchard, while small lots were hauled to town and put in barrels at the packing house. Mr. Allen says he can tell a wind-fall from a hand-picked apple and a sweet apple from a sour one entirely by the sense of touch.

The Glenwood apple harvest had been greatly delayed by lack of help, and barrels and by rainy weather. Considerable fruit was still on the trees October 10, and the prospects were that some would rot in the orchards for want of help to market. Culls were beng shipped away in bulk, sold to the canning factory and hauled to Omaha by hucksters, the price received being about 25 cents a bushel. A large evaporator at Glenwood should be a paying proposition.

The following week the writer visited the neighboring towns of Malvern, Tabor and Hamburg. There are a number of large orchards near each of these places. The crop and prices being paid by buyers was very much the same as at Glenwood. At Hamburg large quantities of culls were being canned at the factory. The price paid was 40, 50 and 60 cents a cwt.

At Sidney there is a promising young orchard of 90 acres, ten years old, owned by Chas. Magel. At Malvern there is a cold storage plant with a capacity of 40,000 barrels. W. Boehner, the manager, had bought and packed away about 8,000 barrels and was packing in a dozen orchards. All fruit must be free from rots or bruises, but small apples and those with worm holes are taken. Along towards spring the stock is repacked and the small apples sold to city hucksters for good prices. The charge for storage is 50 cents a barrel for the season. The storage building is cooled with 1,200 tons of ice placed on the top floor, the temperature being gradually lowered to 32 degrees.

O. H. BARNHILL.

Shenandoah, Ia.

Fruits in California.

Replying to many letters received from readers of the Western Fruit-Grower in regard to California soil, price of land, etc., I wish to say that I am not in the real estate busneiss and have no land for sale. But plenty of land is for sale here at from $100 to $400 per acre. Have all grades, poor and very rich, and price varies accordingly. There is a difference in soil for berries. The foothills are best for berries in winter, the valley lands for summer crops. As to crops of stawberries, will say we have twelve crops a year. Early varieties bear in the spring, from March to August; Brandywine and other late sorts from June to October, when they enter upon a period of rest, beginning again about December 15, and continuing to March; Arizona Everbearing yield best from July to December. Blackberries fruit from June to December. We have a fine berry which does well here, called the Loganberry, a cross between blackberry and raspberry. It is large, 1¾ inches long, three-fourths of an inch theik; color dark red, ripens early, all its yield being ripe in his weeks; vines propagate by tips.

We have all kinds of fruits and vegetables at all seasons of the year, if we apply water at the proper time. I was in the fruit business in Ohio for twenty years, and here for ten years more, and thing Southern California is a great country; climate is especially suited to old people, not too cold in winter nor too hot in summer.

D. DALLAS.

Long Beach, Cal.

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Simply state which book you want, and address Dr. Shoop, box 436 Racine, Wis.

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Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

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Write for our new Condensed Wholesale and Retail List.

We pay the freight at prices in this list.

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Ben Davis and His Friends

Is the Ben Davis apple doomed? P. M. Kiely of St. Louis says it is, and the refrain is taken up by the enemies of Ben Davis in all sections of the country, especially in the East, where Ben Davis has made many enemies because of its competition with the Baldwins of that section.

The Fruit-Grower called attention to the fact a month ago that Ben Davis are being discriminated against by the buyers this year, and that perhaps the discrimination was more marked than ever before. This fact has stirred up all the opponents of Ben Davis, who seek to administer a death-blow—to jump on him when he is down, as it were.

The Fruit-Grower received a communication from P. M. Kiely of St. Louis, a most estimable gentleman, denouncing Ben Davis, but desiring to give every one a chance, we wrote to a number of prominent growers and handlers of apples to ascertain their views. The replies are publisher herewith, and indicate a variance of opinion. We submit these letters for the benefit of our readers, for we do not want them to be stampeded into cutting down their Ben Davis trees, or even to cease planting them until they have heard both sides of the matter. Mr. Kiely's letter follows:

"The current receipts of apples in this and other leading markets of the West show that nine-tenths of the apples coming in, in fact a still larger proportion, are actually of the Ben Davis variety. Upon our levee here Saturday there was 10,000 barrels of apples unloaded from the boats which arrived that day, and of the 10,000 it was found that over 9,500 were Ben Davis. Now this proportion is out of all reason, greatly to the detriment of the apple industry and an injury to the growers at large.

"For years the Ben Davis was found a profitable apple from a commercial standpoint, and this led to a heavy run on the nurserymen for such trees. The demand not only continued, but rapidly increased to the exclusion of almost every other sort, and thus we are confronted with the startling fact that a large number of the best varieties of apples had to give way to one of the poorest varieties grown. The inevitable result is at last before us. Every market in the entire Southwest is now flooded with an apple that is hardly fit to eat or cook. The principal demand for years for the Ben Davis has been from Southern cities, where the trade was hoodwinked through its large size and attractive color, which is all that can be said in its favor (size and color). Many of the apple growers of the country will now realize for the first time what a terrible blunder it was to plant nineteen trees out of twenty of the Ben Davis variety. Thousands realize when it is too late what a terrible mistake was made in avoiding the best varieties and planting the poorest.

"We sold Saturday, for instance, the day that showed the largest receipts and lowest prices of the season, a lot of Huntsman's Favorite apples from J. L. Graff of Murphysboro, Ill., at $3.50 per barrel. At the same time really choice Ben Davis were offered at the levee at $1.50. We sold on the same day Grimes Golden at $2.50 to $2.75, Rome Beauty at $2.00 ao $2.50, Willow Twig $2.25 to $2.50, Jonathan $2.50 to $2.75. Northern Spy, Missouri Pippin, Gano and similar varieties, $2.00.

"The time-honored old favorite, the Genitan (Janet), has disappeared entirely. The Winssap, a far better apple, is exceedinglgy scarce and altogether it is plain that the fruit growers of the great Southwest have lost their heads and their reason on the Ben Davis question. The sooner the tide turns in favor of the other varieties the better it will be for all concerned, shipper, producer and consumer alike.

"Your publication, covering as it does such a broad area of territory, furnishes the best medium I know of to reach the fruit growers of the entire Southwest, and hence I would like to give this letter as wide a publication as possible, together with your own comments on same, whether approving or dissenting. The principal shippers and firms who fill orders inform me that most of the orders received lately embrace: 'Do not ship me any more Ben Davis.' The result is that many of these orders cannot be filled at all, because the receipts of more desirable varieties are so surprisingly small that it is difficult to fill any orders for apples in which the Ben Davis is excluded. As every dealer knows, three-fourths of the current receipts of apples are going into cold storage, yet the high charges for cold storage, 50 cents a barrel, added to the cost of the Ben Davis, low as it is just now, $1.50, makes the Ben Davis cost the investor when withdrawn from cold storage, $2.10 a barrel, which is more than they will bring the remainder of the season, in the estimation of many experienced speculators. Cold storage calls for two drayages, one going and the other coming, then insurance is not included, nor interest on the money invested, so you see the cost of carrying the apples until a more favorable season arises for their disposition, looks up at once as a serious matter. It costs, you will see, as much to carry through the season a barrel of common Ben Davis as it does to store the far more valuable sorts, which is another argument against it, in addition to those submitted.

"You will see from this hasty review of the situation the wisdom of discontinuing the planting of Ben Davis apple trees. P. M. KIELY."

Now, that statement looks pretty strong. But, suppose that instead of Ben Davis apples being so plentiful on the St. Louis market, the difference had been the other way, and Huntsman's Favorite, for instance, outnumbered the other varieties in the same ratio. What would have been the result? Is it not a fact that if Huntsman's Favorite were so plentiful the price would not have been even as high as $1.50 a barrel! And the same is true with the other sorts. If Winesap, Jonathan or any of the other varieties which Mr. Kiely quotes, were as plentiful as Ben Davis, even though they are better quality, they would not likely bring more than Ben Davis are bringing. So it looks as though the discrimination is not so much against Ben Davis on account of its quality, as it is against a variety of which the supply is so large.

To put this proposition another way, a buyer who handles apples told us that if Ben Davis and Winesap are both large crops, the Ben Davis will bring as much money per barrel as the variety which is reckoned a better sort. And another thing: We believe if Mr. Kiely were to ask the growers they would tell him they would rather raise Ben Davis at $1.50 a barrel than Huntsman at $3.50. There is a great discrimination apparent here, but the buyer looks at only the one side. Looked at from the grower's standpoint, it would seem that the difference in price is still not enough to justify him to change from Ben Davis to Huntsman's Favorite, with its tendency to scab, shy bearing, off years, etc.

Now, just another word in regard to Mr. Kiely's position, before we quote from others. He refers to the Genitan (Janet) having almost entirely disappeared. This variety is rather plentiful this year in Northwest Missouri, and the quality is the best ever raised—the apples are so large and well colored that many persons will not believe they are Janets, and they are free from scab and without a crack or blemish. And yet the buyers will not pay as much for Janets as they have for Ben Davis. Ben Davis have been bringing $1.00 to $1.50, Janets 75 cents to $1.00. So that even if these sorts yielded the same quantity of fruit one year with another, the difference would still be in favor of growing Ben Davis on account of price. It seems evident that Friend Kiely has looked at only one side of the matter.

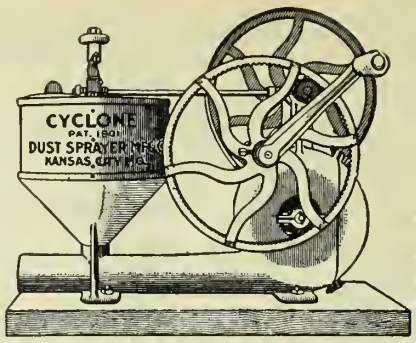
C. C. Clemons of Kansas City, an extensive apple handler, writes:

"I have been very much surprised to read the article by my old and personal friend, P. M. Kiely of St. Louis, on the apple situation, but more especially his remarks on Ben Davis, the standard commercial apple of the country, especially of the West, which is now acknowledged as the apple producing center of the country. Mr. Kiely says the Ben Davis is doomed and is already a 'has been.' Now, Mr. Kiely, you and I are both young men, but neither of us will ever see the day when the Ben Davis will be relegated to the rear. I will predict that long after we both have made our entry in the apple orchards of the other world, we will look down upon our brother merchants left behind and will see them handling apples just the same, and three-fourths of them will be Ben Davis. We will see the horticulturists planting out new orchards, and three-fourths of them will be Ben Davis.

"I can't understand why my friend Kiely has taken such a sudden and decided stand against this very popular commercial apple. In a previous article Mr. Kiely made the statement that he never packed or bought a barrel of apples in his long career as a produce dealer; that he was strictly a commission merchant, and this may in part explain why he took this position; not being familiar with the demands of the leading apple markets of the country, he was not posted.

"In my experience as a commission merchant, especially of late years. I have realizezd that the commission merchant seldom receives anything that the shipper could sell himself. Mr. Kiely stated that on October 11th, 10,000 barrels of apples were unloaded at St. Louis, and that nine-tenths of them were Ben Davis, and that the best stock of this variety sold for $1.50 a barrel. Now, if this was the case (which I do not doubt), something was radically wrong; either the fruit was no good or St. Louis is no apple market. We as a firm are not apple kings by any means (please excuse the personality), but our mail on October 26th and 27th contaned fifty-two letters from seventeen different states, all from leading leading apple dealers of their respective markets, and nine-tenths of their inquiries were for Ben Davis apples. I merely mention this to show the drift of the feeling for this favorite apple, which my friend says is doomed. One of these inquiries was from Boston, asking quotations on 5,000 barrels of our fine western Ben Davis suitable for export. This was about the tone of all the other inquiries. Please compare the sales in foreign markets of Ben Davis with New York Baldwins, and it don't take a blind man to see that they trot in the same class. Last week we sold twenty-five cars of straight Ben Davis, and could have sold more if we could have got cars to load them in. Don't understand me to say that Ben Davis is the only apple or the best eating or cooking apple, but I do sav that it is to the West what the Baldwin is to the East, it is the best commercial apple of the country, and just as long as it fills these requirements just so long will it suit the grower, the packer and the seller. Mr. Kiely advises the agricultural journals to give timely warning to their readers, to the fruit growers, to the nursery trade, and to all others interested, that public taste is improving, that Ben Davis is doomed. Now, friend Kiely, this is an injustice to our friend Ben. I don't think that you or the agrcuiltural journals should do anything of the kind, until by actual experience you find some other variety that will take the place of this favorite commercial apple. This advice would certainly be very discouraging to large apple growers that have already planted and are still planting 500 and 5,000 acres to apples, and three-fourths of them Ben Davis. Give the devil his dues, and I predict that the Ben Davis is not doomed. C. C. CLEMONS."

Mr. Clemons brings up a good point: If growers are to quit planting Ben Davis, what variety will take its place? Willow Twig will not, on account of the fruit beng subject to bitter rot and the trees to blight, besides not bearing well in some sections. Jonathan will not, for it does not keep well, except in storage, and the fruit often drops unusually early. Grimes Golden will not, on account of the fruit scalding in storage, and the tree being weak in some places, dying at the surface of the ground. All of these are good



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APPLE GROWERS

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apples, and should be grown, perhaps more extensively than they are, but when it comes to replacing the Ben Davis trees with trees of these sorts, the proposition is out of the question. But hear what others say:

C. H. Williamson, Quincy, Ill., both a grower and an extensive handler of apples, says: "I think a great deal of the so-called discrimination against Ben Davis is against, not the variety itself, but against the lack of variety. I believe the Ben Davis is a good apple—as good, every bit, as the Baldwin. Growers, however, should raise more of other sorts, especially of the finer varieties. They will always raise a good many Ben Davis, and they will be consumed, too."

Porter Brothers Company of Chicago, who handle great quantities of apples, write: "We think the discrimination against Ben Davis is not for this year only, but will be, in our opinion, more so each season from now on, on account of the thousands of acres of this one variety planted throughout the West in the last fifteen or twenty years. We think it advisable for growers to plant more of other varieties and fewer of Ben Davis. In regard to Eastern and Western-grown Ben Davis, we will say we are satisfied those grown in the West are superior to those of the same variety grown in the East."

Secretary L. A. Goodman of the Missouri State Horticultural society, who has studied the opposition to Ben Davis and is thoroughly posted, presents his views, which are to the point, as follows:

"I see much is now being said against good old Ben Davis. It may be that much is true for eastern grown or northern grown Ben Davis, but when you take southern grown, or Missouri grown, or Ozark mountain grown Ben Davis, the accusation is not true. Well grown, picked at the proper time kept properly, the Missouri Ben Davis is a good apple. It is the best apple to cook, to evaporate, to keep, to ship, and while not equal to Jonathan by any means, it is really a good apple to eat, if above conditions have been met. We find it giving us apples when all others fail, as it did last year; we find it in demand when we have no other friend to call upon. The great trouble has been that it is also grown where it is of very poor quality and should have never been planted, and its reputation has had to suffer in consequence.

"The fact that Ben Davis is not wanted as much as usual is no argument against good Ben Davis. I have seen the time in Michigan when Baldwins were not wanted also, but no one would condemn it on that ground. I have seen the time here in Missouri when Winesap and Janet were not wanted by the buyers, and yet we all know them to be good apples. Too many jump at conclusions and say all Ben Davis are alike, and then condemn all alike; when, if they only looked into the matter more closely, they would see that varieties grown where they are adapted to the soil and location and climate, there would be no complaint to offer. We have only to cite the utter failure of some of the eastern and northern varieties grown here in Missouri. For instance, there is no comparison in the quality of the "Snow" grown in the north, and in Missouri; those of the north being far superior in quality to those grown in the south.

"I have tested over and over again the Ben Davis grown in Michigan and Wisconsin with those grown in Missouri, and the difference was so perceptible that no one would have called them the same, by the taste alone; but the Missouri grown was so far superior in quality to those grown north that they could be called a good apple. Buyers this year are shunning the Ben Davis because of the indiscriminate use of those grown in all locations last year. But even this was not an unmixed evil for that year, because there were none others to be had; but the evil effects come this year, because all kinds of Ben Davis were put upon the market. The Ben Davis is too profitable and too prolific a bearer, too good to evaporate or make into apple butter, or jelly, too large and handsome, too good a shipper, too good a keeper, too good to cook, too good for cold storage, and wherewithal too good to eat, to be lightly thrown aside because a few buyers have blundered in their judgment of what, when and where to buy them. L. A. GOODMAN."

Judge Wellhouse, the large apple grower of Kansas, expresses his views as follows:

"I regret to say that Mr. Kiely's statement is true, not only with Ben Davis, but the Gano also. But when he advises us to drop this old money-maker as a thing of the past and that hereafter it will be a drug on the market, I must dissent. The conditions this year are easily explaned. The abundant rains during mid-summer pushed the apples along so they were matured three to four weeks earlier than usual and should have been picked that much earlier. We picked our Ben Davis in September, and they were in fine condition and were received by the buyer without complaint. We did not reach our Gano until after the middle of October, and when we commenced sorting them we had to throw hundreds of bushels into the cull pile and the buyer rejected over 300 bushels, simply because they were too ripe. Last year this condition of things was reversed. The dry weather in midsummer kept the apples back so that on the first of August the winter apples were not over one-half to three-fourths of an inch in diameter, but in August we had some good rains and the apples grew very rapidly but were not well matured until the last of October."

Note what Mr. Ben Newhall, of F. Newhall & Sons, Chicago, says. This firm is one of the largest in the country in the apple business, and Mr. Newhall is qualified to speak on the subject.

"In answer to your question, 'Do you think the discrimination against Ben Davis will be a permanent thing?' undoubtedly there will be discrimination in price on Ben Davis apples as compared with five or six varieties of western fruit. It is, however, just as certain that the Ben Davis will be preferred to several prominent varieties from the same section. Comparing the Ben Davis, which is the apple grown most largely in the West, with the Baldwin, its counterpart in the East, we would say that the Ben Davis has averaged fully as much money per barrel in the orchard as the Baldwin. As to the intrinsic quality of the two, we believe for commercial use, the average Ben Davis, as grown in the Ben Davis section of the West, is as valuable an apple as the Baldwin, grown in the East. It has not quite the acid of the Baldwin, but makes as rich pie or sauce. We would say further that the Baldwins grown and ripened in perfection is much better an apple than the Ben Davis under similar conditions, but these conditions are exceptional and do not affect the general average, which is all we have been considering here. There is no doubt that the growers of the East and probably some dealers of the West, would like to see the Ben Davis take a second or third rate position in the commercial apple field, but until some finer variety is found which has the color, shape and size and keeping quality of the Ben Davis, we believe that the Ben Davis will continue to be, as it is now, a favorite in the commercial apple world. This does not mean that we would advocate the extensive planting of the Ben Davis to the exclusion of finer varieties, in fact, we think the opposite should be the case.

"Yes, we find a decided difference between western Ben Davis and those grown in the Baldwin section of the East. We think a Michigan or New York or New England Ben Davis a decidedly poor excuse for an apple."

The Fruit-Grower presents these views from different persons, viewing the matter from different points, in the hope that the whole matter will help prospective planters of apple trees, and also give those growers who already have Ben Davis orchards a pointer on the trend of opinion.

A Pioneer Fruit-Grower Dead.

Mr. Nelson Cox, the Nestor of the fruit-growing gindustry in Southern Ohio, died at his home in Lawrence County, Ohio, October 30, after a lingering illness, leaving a widow and seven children, all of them grown. Mr. Cox was over 70 years of age, and had been engaged in horticultural pursuits since 1854. He was one of the most extensive apple growers in the Ohio valley, and had a larger planting of Rome Beauty than any grower in the country perhaps. The Rome Beauty originated in the county in which Mr. Cox lived, and since 1870 he has grown it extensively. He has harvested as many as 3,600 barrels of this variety in a single season. A letter from U. T. Cox, son of the deceased, says the members of the family will continue the business started by their father, and will hope to even improve it. This year the crop of Rome Beauties was 3,300 barrels of marketable fruit, and over 2,000 barrels of No. 1's sold for $3 per barrel as soon as packed.

Horticultural Meetings.

Among the prominent horticultural meetings to be held during the next few months are the following with dates and places of meeting:

National Apple Growers' Congress, St. Louis, Nov. 18 and 19, held at Southern Hotel.

Southern Illinois Society, Anna, Ill., Nov. 25 and 26.

Northern Illinois Society, Sterling, Ill., Dec. 2 and 3.

Missouri State Society, Springfield, Dec. 2 to 4.

Minnesota State Society, Minneapolis, Dec. 2 and 3.

Southwestern Iowa Society, Clarinda, Dec. 16 and 18.

Iowa State Society, Des Moines, Dec. 16 to 18.

Illinois State Society, Champaign, December 17 to 19.

Kansas State Society, Topeka, Dec. 26 to 28.

New York State Fruit-Growers' Assn., Buffalo, Jan. 9 and 10.

Pennsylvania State Society, Harrisburg, Jan. 20 and 21.

Large Advertising Business.

Lord & Thomas, the well known advertising agency of Chicago, has just sent out some well-printed booklets telling of the extensive business which this company is now carrying on. Letters from a large number of the largest newspapers in this country show the great quantity of advertising which is placed by this firm. Lord & Thomas, by the way, have just added a special advertising department, in charge of Mr. D. L. Taylor, an experienced man, and this new department will look after the great volume of agricultural advertising which this agency will handle. With this agricultural department in good working order, Lord & Thomas will be better than ever equipped for handling advertising accounts economically and with satisfaction to the advertiser.

A Great Fruit Country.

The Western Fruit-Grower has just received a very neat illustrated booklet giving statistics concerning profits from growing fruits and vegetables in eastern Texas. This booklet tells of the country around Jacksonville, Tyler, Bullard, etc., where peach growing and tomato culture have proved most profitable in recent years. This is the country, it will be remembered, in which Mr. Roland Morrill, the great Michigan peach grower has located his southern orchards. By this booklet we learn that peaches have netted the growers from $50 to $75 per acre, and tomatoes from $75 to $200 per acre. This booklet will be sent free to any of our readers who wish copies. Address E. W. LaBeaume, G. P. & T. A., Cotton Belt Route, St. Louis, Mo.

For the serious diseases that attack the kidneys, Prickly Ash Bitters is an unfailing remedy. Relieves backache, swelling of the feet and persistent headache—symptoms which indicate kidney trouble.

Lowest Colonist Rates.

The Chicago Great Western Ry., on the first and third Tuesdays of November and December will sell one-way second class colonist tickets to the West, Southwest and South at lowest rates yet offered. For particulars inquire of H. I. FAY,
Ticket Agent, St. Joseph, Mo.

The kidneys are small but important organs. They need help occasionally. Prickly Ash Bitters is a successful kidney tonic and system regulator.

Nurserymen reported a scarcity of peach seed for planting this fall. The supply is not as large as expected, and the demand for planting is exceptionally heavy. This would indicate that the nurserymen expect a continued demand for peach trees.

The American Assets Realization Co.
Have you anything in your old papers?
Every investment has not paid out.

All men are not financiers—
Many trust to the judgment of others.
Each has had his own experience,
Rather pocket their loss than kick.
In some instances they resort to law,
Court costs soon discourage them
And now we want to look them over.
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Surely worth something to somebody
So sure are we, we will make
Examination Free of Charge.
To all we promptly reply.
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REAL ESTATE—FARM OR CITY,
No matter where located.
ESTATES—Old and Defaulted—
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ALL KINDS OF CLAIMS, LIENS,
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Include everything; facilities ample.
Zeal is our watch word
And we can demonstrate it to you.
Take advantage of our offer to you.
Investigate us. We refer to bankers,
Or individual references if desired.
Nothing ventured, nothing gained—
Card (postal) will reach us for 1 cent.
Only a card is necessary.
Maintaining our proposition to all.
Please think if you have something,
And give us the facts.
No charge made for such service.
You are invited to accept of it.

The AMERICAN ASSETS REALIZATION COMPANY.
Bank of Commerce Building.
ST. JOSEPH, MO.
(Please mention this paper in writing)

Forest Tree Seedlings

I have from 50 to 150,000 of each of the seedlings named below, which I offer for immediate delivery.

		100	1,000
Catalpas—			
Speciosa (true)	6 to 12 in.	$0.30	$2.00
	12 to 24 in.	.40	3.00
Tea's Japan	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.50	4.00
	4 to 8 ft.	4.00	
Kaemfera	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.50	4.00
	4 to 7 ft.	4.00	
Box Elder	6 to 12 in.	.30	1.50
	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.60	5.00
Black Locust	6 to 12 in.	.30	1.25
	1 to 2 ft.	.40	2.00
	2 to 3 ft.	.50	3.50
	3 to 5 ft.	60	4.50
Red Bud	4 to 6 in.	.20	1.25
	6 to 12 in.	.30	2.50
	12 to 24 in.	50	4.00
	2 to 4 ft.	1.00	8.00
Green Ash, 1 yr.	6 to 12 in.	.30	2.00
	1 to 2 ft.	.40	3.00
	2 to 4 ft.	1.00	9.00
Abies Canadensis— Hemlock	6 to 12 in.	.50	4.00
	1 to 2 ft.	1.00	8.00
Juniperus Virginiana, Red cedar	6 to 12 in.	.60	3.00
	1 to 2 ft.	1 00	5.00
Horse Chestnut— White flowered	6 to 12 in.	.60	5.00
Persimmon— American, 1 yr.	6 to 12 in.	.40	3.00
Russian Mulberry	4 to 8 in.	.15	.90
	8 to 14 in.	.25	1.50
	1 to 2 ft.	.40	3.00
Black Mulberry	6 to 12 in.	.40	3.00
	1 to 2 ft.	.60	4.00
Chinese White Wistaria	6 to 8 in.	3.00	
Trumpet Flower	1 to 2 ft.	.50	4.00
Tulip Poplar	4 to 6 in.	.30	1.50
	6 to 12 in.	.40	3.00
Sycamore Plane Tree	4 to 6 in.	.30	1 50
	6 to 12 in.	.40	3.00
Black, or Marsh Willow	1 to 2 ft.	.30	2.50
	2 to 3 ft.	.50	4.00

The above prices are for immediate orders. Send for seed and seedling list of trees and shrubs. I have about 40 lbs. nice clean Abies canadensis (hemlock) seed at $2.00 per lb., or 10 lbs. for $16.00, while they last.

J. H. H. Boyd, Gage, Sequatchie Co., Tenn.

The Tree of Life

The Tree of Life is one budded upon branched root seedling, buds from bearing trees and grown upon our Michigan fruit land; dug by our root protecting tree digger and handled in our mammoth storage cellars. Get our prices on SMALL FRUITS before ordering. We guarantee safe delivery.

Central Michigan Nurseries
MICHIGAN'S MAMMOTH NURSERY,
KALAMAZOO, MICH.

Do you know

that the "Rogers" is the earliest dewberry in the United States? Brought $10.00 per crate in Dallas, Tex., April 15, 1902. The "Rogers" is the earliest, best shipper, heavy bearer, fine quality, and the finest berry procurable for the home garden or commercial field.

Try a few plants, and be convinced that the "Rogers" is what you have been looking for.

Strong, healthy plants, securely packed, 75c per 100, $6 per 1,000, f. o. b. shipping point.

Special rates on large orders. Terms, strictly cash.

JAMES W. HAMLETT, Alvin, Tex.

$10.45 $10.45 Buys a 20 year guaranteed Sewing Machine, with high arm, latest improvements, choice of drop head cabinet or 7 drawer upright cabinet. Our ball bearing machines are highest grade made. Shipped on trial without any money with order. Our Catalogue shows 15 styles. Send for it.

$3.90 for this Oak Heater, burns wood, soft or hard coal, has heavy cast iron base, draw center grate, corrugated fire box, double screw draft regulator, ash pan. Nicely nickeled and all the latest improvements. Our Big Catalogue shows everything in stoves. Oak stoves $3.90 to $12.50, air tights 98c to $1.20, heaters and cooks of all kinds, also stove pipe and all fittings.

This Scale Only $6.95 Weighs from ¼ to 600 lbs; size of platform 17½x26½ in. Guaranteed To Weigh Correctly. 4 T. wagon scale $27.60. 240 lb. union platform counter scale $1.75. Scales of all kinds.

$2.67 for genuine Electric Washer made of white cedar, galvanised hoops, corrugated inside. Durable and strong. Saves ½ the labor. 12 styles Washers, at 75c; our price, $2.05 to $5.75. Also Wringers. Send for catalog, postage is 15c, but we send it free. Write to-day.

45c For this double fleeced lined undershirt, silk bound. A heavy warm shirt; size 34 to 46. Retails at 75c; our price, 45c. Drawers to match, 45c. 205 styles of ladies, men and children underwear

75c. for men's flannel over shirt. Good weight, well made, double stitched seams, double yoke and shoulders. Greatest shirt bargain ever offered. Our Big Catalog shows 32 styles. Also cotton work shirts. Everything in shirts.

$1.65 Buys this large iron covered trunk. Good lock, strong bolts; tray has covered hat box. A bargain. We have 278 styles and sizes trunks, satchels and telescopes, also traveling bags.

TIN AND ENAMEL WARE. We have the largest assortment ever shown. Prices very low. Catalog free.

$1.95 buys this brace and bit set, brace bar 10 in. sweep, steel jaws, 8 warranted auger bits, sizes ¼ to 1 in. 1 screw driver bit, 12 other sets. A complete set carpenter's tools $2.40 to $18.95. Our catalogue illustrates 7,000 different tools, 1,800 cuts tinware and other hardware.

8 CENTS. Stanley 2 ft. carpenter's rule 4 fold, 1 in. wide, round joints. 150 styles rules, squares and tape lines.

33 CENTS for 26-in. hand saw. We have complete line Disston's saws.

15 cts per pair full calf skin palm, patent fastener, etc. A strong, reliable glove. 214 styles gloves and mittens for men, ladies and children.

55c buys guaranteed ax. Wt. 3 to 5 lbs. Sixteen styles of double and single bit axes of the latest patterns.

37c for a warranted steel claw hatchet. Wt. 1¼ lb. 50 styles.

26c for a 1 lb. steel hammer. Warranted. Retails at 60c. We have a good hammer at 19c.

Send for Our Catalogue of over 400 pages, size 9x11 inches. Postage is 15c, but if you will cut this ad out and send it to us we will mail the catalog FREE. MARVIN SMITH CO., 55-57-59 N. Jefferson St., CHICAGO, ILL.

Dewberries For Profit.

By request of several interested parties, I give below a few pointers on growing dewberries for profit. The most important thing for all commercial fruit growers to consider is the earliness, flavor, yield and shipping qualities of the fruit he intends to grow. It is hardly necessary to say that, all things considered, the extremely early berry always commands the highest market prices; and when one can secure a variety of fruit that possesses these four great requisites—earliness, fine flavor, heavy yield, and good shipping qualities—he has all the necessary means of realizing handsome net returns from his commercial venture. Of course, proper cultivation has a great deal to do with the yield of any crop.

There are various opinions as to how best to plant and take care of the dewberry. I have found that rows six feet apart with plants three to three and one-half feet in the row (according to quality of soil) give the best results. This will give ample space to cultivate and still have a three-foot row of berries. The dewberry reqquires a moist, fertile and well drained soil. Will do as well on heavy clays as on the lighter loams, provided it gets the moisture, especially during the fruiting season. Mark off rows six feet apart, then throw out with turning plow, getting well down into the subsoil. Then, if you want the best results, scatter in the water furrow raw bone meal at the rate of 1,000 pounds per acre. Bed on the meal, harrow or drag off rows to smooth them and crush clods. Use trowel in planting. Be sure that plants go in ground at least six inches, and be careful to firm soil around them. Do not pay any attention to tops of plants, as new shoots will come out from roots. A cheaper and quicker way to plant on a large scale is to lay off straight furrow six (better eight) inches deep on top of row, drop plants at proper distance and cover with turning plow, rolling ground afterwards. After berries have got a good start, one man with team and cultivator can take care of forty acres. Berries should be plowed the same way so as to make runners lie in the proper direction.

After each crop has been gathered, mow vines close to the ground and burn in the row if possible. If not, drag into windrows with harrow or rake and burn in situ. Then with turning plow or disc harrow throw soil away from row, leaving a ridge twelve inches wde. I find that "skimming" this ridge with scraper or sharp turning plow is a cheaper and more rapid way of cleaning than hoeing, while it does not injure the plants. A two-horse disc harrow, with the outside discs removed, makes an admirable "middle buster" for throwing dirt back to plants. Plants should be plowed often enough (always the same way) to keep vines from crossing rows or forming a mat wider than three feet. Keep large weeds cut down, but don't bother about the finer grass, as it acts as a mulch for protecting plants in the winter.

A top dressing of super-phosphate at the rate of 200 pounds per acre just before buds appear will greatly enhance value of the crop—a fact best appreciated when the berries are ready for market.

The rules for gathering and marketing strawberries apply equally as well to dewberries. For distant markets the dewberry field should be gone over daily, and the pickers should be cautioned against putting in green and over-ripe fruit. When possible, sell f. o. b. shipping point. This will save a vast amount of worry, and will net you, on an average, as much as to ship. Next best, get a commercial agency's rating book, and select names of responsible business men dealing in your line of goods, and mail them quotations weekly, or oftener. As a last resort, select one honest commission firm in each town or city where you contemplate shipping, and have them to keep you posted daily as to market conditions, even at your expense for postage. It will not cost much and may save you ten or twenty times its value in one season.

If you would grow dewberries for profit get the earliest and best variety and you cannot possibly be disappointed. JAS. W. HAMLETT.

Alvin, Texas.

The Russian Mulberry.

Since the introduction of this tree to this country some twenty years ago, there has been a great deal of discussion as to its merits when planted as a screen, windbreak, hedge, timber or fruit tree. From descriptions given by some over-enthusastic tree growers when the tree was first introduced, some planters got an exaggerated idea of some of its qualities, especially as a timber and fruit tree, and they naturally were disappointed. But the fact that there has always been a good and increasing demand for this tree through all these years shows of itself that it possesses special merit. We wish to mention some of the uses to which this tree is particularly adapted and for which we consider it of special value. Its quick growth and low, spready habit make it the most desirable deciduous tree for close-in windbreaks for stock yards or about farm buildings. When the rows are not planted too thickly the limbs will keep their foliage to the ground, forming an almost perfect shelter from winds and storms. It can also be grown to one of the most beautiful ornamental hedges we have and can be depended upon to stand year after year apparently unaffected by the extremes of the seasons, heat or cold, and produces each year in abundance its rich, bright foliage. It is now beng generally planter both in the cities and country more than any other tree or shrub for this purpose. Fruit growers generally are only just beginning to realize the great value of this tree to supply the needs of birds while their small fruits are ripening and is usually a complete protection, as the birds prefer this fruit to the sour sorts of small fruits which are usually grown in the garden, especially cherries. It covers a long season of fruiting, usually from about the first of June to the first of August. To get this long season of fruiting several hundred should be planted for screens or windbreaks where space is available and can be used to good advantage for this purpose. The fruit, while it is generally considered by adults to be too sweet and insipid for eating, we notice that many older people as well as children are very fond of it, the latter consuming large quantities of the berries on all opportunities. The seedling trees can be procured from the nurseries so cheaply and they transplant so readily and grow to fruiting age so quickly that the expense is of but little account compared with the value to the farm. We wish also to call particular attention to the Weeping Mulberry, as it is by far the finest weeping tree of its class for either lawn or cemetery planting, being far superior in every respect to the Weeping Mountain Ash, Kilmarnock Willow, Elm, etc. It soon makes a very dense top, with the limbs gracefully trailing to the ground and makes a most beautiful ornamental tree.

Beatrice, Neb. J. A. GAGE.

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Else No Money is Wanted

After 2,000 experiments, I have learned how to cure Rheumatism. Not to turn bony joints into flesh again; that is impossible. But I can cure the disease always at any stage, and forever.

I ask for no money. Simply write me a postal and I will send you an order on your nearest druggist for six bottles Dr. Shoop's Rheumatic Cure, for every druggist keeps it. Use it for a month and, if it succeeds, the cost is only $5.50. If it fails, I will pay your druggist myself.

I have no samples, because any medicine that can affect Rheumatism quickly must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take the risk. I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay gladly. I have learned that people in general are honest with a physician who cures them. That is all I ask. If I fail I don't expect a penny from you.

Simply write me a postal card or letter. I will send you my book about Rheumatism, and an order for the medicine. Take it for a month, as it won't harm you anyway. If it fails, it is free, and I leave the decision with you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

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People who bought trees of us over a quarter of a century ago are patrons and fast friends to-day. We have the same customers year after year. That is unimpeachable evidence of the superior quality of

Sweet's Genesee Valley Trees.

Our nurseries now present the finest showing of fruit and ornamental trees, shrubs and vines ever grown. All smooth, hardy, vigorous growing, disease free stock. Of the fruit trees we have in finest condition for spring planting all the apples, plums, proved standard varieties of apples, peaches, cherries, etc. Our showing of Standard Pears this year is not here approached. Stock more carefully budded, better rooted, smoother or thriftier is an impossibility. Get our latest free catalogue for the best nursery stock of any kind grown.

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Write for our Price List of All Varieties of Fruit and Ornamental Trees, Plants, Shrubs, Vines, Roses, Bulbs and Forest Trees, Seedlings. Mailed free. Please mention the Western Fruit-Grower when writing.

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For Apple Seedlings and General Nursery Stock

write the Wichita Nursery. Our specialty, stock True to Name. Certificate of Genuineness furnished. Each order receives the careful attention of the proprietor. Write for prices, get my stock and be convinced. Call on or address

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1. Earlier than Early Harvest.
2. Berry large as Erie.
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5. Small seeds.
6. Large drupes or eyes.
7. Very juicy berry.
8. Core soft and never bitter.
9. Berries do not sunburn.
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11. Short thorns.
12. Makes few suckers.
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14. Free from rust.
15. Heads off drouths.
16. Perfectly upright canes.
17. A productive variety.
18. Without a competitor.

10,000 plants ready for shipment. Send for descriptive circular and plant price list. F. L. Kenoyer, Independence, Kan.

STRAWBERRY PLANTS

We have two or three million plants as fine as can be found. All leading varieties: Aroma, Rough Rider, Excelsior, Parker Earle, War-field, Monitor, Splendid, Sample, etc.

OUR RASPBERRY PLANTS are hard to beat. Cardinal, Munger, Nemaha, Kansas, Gregg, Miller Red, etc.

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Our prices are right. Send for catalogue. Discount on large orders.

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Snyder, Taylor, Stone's, Iceberg, Mersereau, Eldorado, Maxwell's Early, Agawam, Western Triumph, Erie, Ancient Briton, Lovett.

Also all the leading varieties of Strawberries, Raspberries, Gooseberries, Currants, Grapes, Asparagus, Wineberry, etc.

Get our prices before buying. Catalogue free. Address

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450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

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Under Prof. Wm. P. Brooks, Ph. D., of Mass. Agricultural College. Treats of soils, tillage, drainage, fertilizers, crop rotation, stock-feeding, poultry-raising, dairying, etc. Also Horticulture under Prof. Bailey, of Cornell University, and Agricultural Bacteriology under Prof. Conn, of Wesleyan.

Full Commercial, Normal and Academic departments. Tuition nominal. Text books free to our students. Catalogue and particulars free. Write to-day.

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Farmers' Handy Wagon

With 4-Inch Tire Steel Wheels

only $21.95

Low and handy. Saves labor. Wide tires, avoid cutting farm into ruts. Will hold up any two-horse load. We also furnish Steel Wheels to fit any axle. Any size wheel, any width of tire. Catalogue free. Address Empire Manufacturing Co. Quincy, Ill.

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Currants, Gooseberries, Blackberries, Raspberries, Strawberries. Price List FREE.

Send 2c stamp for illustrated descriptive catalog.

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Agents and Dealers

wanted to sell Rippley's 4 and 5 Gallon Compressed Air Sprayers, Large Orchard Sprayers, Spraying Solutions and Breeders Supplies. We can keep you busy the year around. Large 1902 catalog and terms free.

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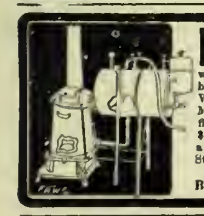

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are healthy and hardy. Buds cut from bearing trees insure stock true to name. 913 acres—two million trees—apple, peach, cherry, plum, pear and quince. Ornamental trees and shrubs. Order direct at wholesale prices. Beautifully illustrated catalogue sent free. Write to-day.

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HARDY Nursery Stock.

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The Apple Aftermath

The apple crop of 1902 is estimated by Orange Judd Farmer to aggregate 43,020,000 barrels, against 26,970,000 barrels last year, 56,820,000 barrels in 1900, 58,466,000 barrels in 1899, and 47,701,000 barrels in 1898. This is perhaps the best estimate which has been compiled, and indicates that there should be no trouble in disposing of this crop of fruit this year, with trade conditions as prosperous as they are, and with the export demand unusually brisk. Yet notwithstanding this, prices for apples have been somewhat disappointing.

Most of the buyers have bought all the fruit they will purchase now—their later purchases will be made from persons having good fruit in storage. In the West storage houses are all full of apples, and for a time the markets are apt to be pretty well supplied from the fruit which could not be stored. Apple handlers say they expect no increase in price until this fruit is out of the way.

Just what may be expected in the way of price later is problematical. Some dealers profess to believe prices will rule low for some months, while others are much more hopeful. It seems evident that those who look for higher prices have somewhat the best of the argument. Exports of apples are five times what they were a year ago, and the foreign market is reported to be strong. This being the case, it would seem that prices will be pretty well maintained.

Another factor in regard to price is the uncertanty as to the keeping qualities of New York apples this year. It will be remembered that the Fruit-Grower has all along claimed that a great deal of the New York crop was very scabby. This is ordinarily not so serious a matter, except that the scab renders the fruit unsightly, but the keeping quility is not affected. This year, however, a new trouble has appeared, as will be seen by the following circular from the Geneva (N. Y.) Experiment Station:

"An unusual and serious trouble with harvested apples has appeared in western New York. It is confined entirely to scabby apples. A white or pinkish mildew appears upon the scab spots and transforms them into brown, sunken, bitter, rotten spots. On very scabby apples these rotten spots soon coalesce and ruin the fruit.

"The damage done is enormous. In Niagara, Orleans, Monroe and Wayne counties, thousands of barrels of apples have been ruined. The varieties most affected are Greening and Fall Pippin. Upon investigation it was found that the white mildew on the scab spots is the cause of the rot, and that it is a fungus having no connection with the scab fungus. The scab itself will not rot a fruit, but it breaks the skin wherever it grows and thereby makes an opening for this other fungus to get into the apple and rot it.

"Traces of the rot are sometimes found upon apples while still on the trees, but the greatest damage is done during the sweating process, either in piles on the ground or in barrels. Apples barreled immediately after picking and placed at once in cold storage seem to escape the trouble, but it is liable to appear later when the fruit is placed upon the market.

"A preventive of the rot is much to be desired, but at present none is known. Investigations in this line are now in progress at the New York Agricultural Experiment Station.

"The whole trouble can be traced back to a lack of spraying. Had the apples been kept free from scab by spraying, the white rot fungus could do them no harm in storage. However, the past season has been exceptionally favorable for scab and spraying has beenless effective than usual."

If this disease attacks fruit in cold storage, or even if it develops just after fruit comes from storage, there will be a decrease in the supply of New York apples on the market.

Apple scab caused all sorts of trouble in New York this season, and there was much dissatisfaction among both buyers and growers and buyers in some sections. Advices from Medina, N. Y., state that the situation in Orleans county concerning both apple growers and apple buyers is proving to be a peculiar one, because of the growth of fungus upon the fruit. Many varieties of apples are practically free from the fungus spots, notable the famous Orleans County Baldwin, which has been only slightly affected, as a rule. The Greenings are spotted so badly that the buyers are claiming that they will reject the entire crop of many orchards, or offer such low prices that the farmers would rather keep the fruit for stock or else draw it to the evaporators. The buyers claim that the presence of the fungus destroys the demand for the fruit in the market and classify the spotted fruit as second or third in quality according to the number of spots. The growers declare that the fungus is not an actual and only apparent damage to the apple and dislike to have their fruit separated in lots with varying prices simply on account of the fungus specks.

For first-class fruit good prices are paid—in some cases ranging as high as $3.50 per barrel. A buyer for a prominent apple dealer told the Fruit-Grower that his house had paid much more for apples in New York than it had in the West—and it is a Western house, too. The firm was misled early in the season by the reported heavy crop in the East and the shortage out this way. As a consequence most of the buyers were sent East and the West was almost neglected. As the crop developed it became apparent that the difference in price was in favor of the Western fruit, and some of the buyers were recalled from New York, but this did not take place soon enough to allow the Western field to be covered. This shows a faulty system somewhere, which should be remedied so far as possible before next season.

Conversation with a number of buyers who operated in the West this season develops that all of them feel pretty secure over the situation. The Western fruit was generally of good quality, free from scab, and, on account of the large crop, the fruit was culled severely, and only the best quality went into storage. It is believed, therefore, that the fruit in cold storage will keep well, though there is a feeling that the unusually warm weather during the month of October caused fruit not in cold storage to ripen very rapidly, and this fruit will not keep so well.

"On the whole," said a Western apple man, "I believe the farmer or the buyer who secured his fruit at the ruling price in the West, will be all right; their fruit will hold up well and come out in nice condition. As to the Eastern product, I cannot say. If their fruit goes down, it will make the demand for our stock all the greater. If their fruit does not decay, then we will still be all right, I believe, for we bought our fruit for less than the buyers who secured the Eastern crop."

The foregoing is about the best information obtanable concerning the apple situation. It is to be hoped that buyers and growers who have fruit in storage will realize a proft, and that next year the mistakes of this season may be recalled and efforts made to remedy them. This season has been one which should give growers and buyers a profitable experience.

Cold Storage for Apples.

The horticultural department of the Iowa Experiment Station has one hundred barrels of standard varieties of Iowa apples in cold storage to determine the relative keeping qualities of the varieties, of time they may be held successfully, and the best temperature for storing.

The varieties included in the test are Wealthy, Wolf River, Fameuse, McMahon, Jonathan, Domine, Ben Davis, Seek-No-Further, Janet, Roman Stem, Northern Spy, Willow Twig and White Pippin. From three to ten barrels of each variety have been used, and the apples carefully selected and packed.

The apples were bought at Corning, Iowa, in the heart of the Adams county apple district, at prevailing prices, and were packed by a commercial packer under the direction of the Experiment Station. The results should be a fair guide both to the commercial orchardist and dealer. The work this year is but a beginning and it is hoped that next year it may be conducted on a more extensive scale and that co-operative experiments may be arranged for in different sections of the state.

Cold storage of fruits and vegetables is a subject of vital importance to the live horticulturist, and the Experiment Station at Ames is receiving many inquiries from those who contemplate building storage plants both for private and commercial use. It is a line along which little experimenting has been done, and a subject of special importance to the fruit growers of the northwest, since we cannot raise successfully the long-keeping varieties of the East.

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THE WESTERN FRUIT-GROWER
AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS
ST. JOSEPH, MISSOURI

Volume Twelve NOVEMBER, 1902. Numbef Five

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President Roosevelt has issued a proclamation designating Thursday, November 27, as a day for national thanksgiving. The day should be observed with more feeling this year than it was a year ago. Last year, notwithstanding the blessings which we enjoyed, the shortage of crops made us feel that we had little to be thankful for —and it is likely the celebration of the day was not as earnest as it should have been. But compare our condition today with that of a year ago. Great crops of all kinds, which are bringing fair prices. The country generally is prosperous, and prospects for trade in all lines are good. Think of the Missouri farmers, for instance, with the greatest corn crop the state ever raised, with the greatest wheat crop ever grown in the state, and which is the second crop in the Union this year; with heavy hay, oats, potato and other crops, and a fruit crop which has been a surprise and a satisfaction. True, some hay has been damaged and some wheat lost by the rains, and some fruit was not handled to the best advantage, but conditions are satisfactory, as a rule, and every one is contented. With these temporal blessings there are other things for which our farmers may be thankful. They live on the farm, and their property is rapidly appreciating in value; their sons and their daughters are reared close to nature, and are strong in mind, body and in character; every member of the family is at home at night, rather than running free in the midst of vice and temptation of the city—all these are things for which the farmer should give thanks, and most heartfelt thanks, too. And then, too, look at the changing conditions. Every effort is being made to take to the farmer the comforts which the residents of the cities enjoy—rural free delivery, farm telephones, county high schools, and all that. The farmer is a bigger man today than ever before, and the world looks up to him. He is the richest man, in all that go to make up true riches, and on Thanksgiving Day he should pause and try to enumerate the blessings he enjoys—if he will do this, then on all our American farms there will be a spirit of devout thanksgiving, and the farmer will be glad that he is an Amercain citizen and that he is an American farmer.

Several things have been demonstrated this season, and it will be well for the matters to be discussed at horticultural meetings this winter. One is that there is need for more storage houses for apples in the West. There have been some new houses opened this year, it is true, but not enough are available for the handling of half an apple crop, to say nothing of a full crop, when one is produced. The Fruit-Grower received a letter from a grower last month in which he stated he had 3,000 barrels of apples, with no barrels in which to pack them, and no storage for the fruit even if he could get it packed. We tried to help find storage for him, but every house was full. If all the houses were filled this season, with not half a crop, what will be done with a full crop of apples?

Another thing: It seems to be evident that our Western growers must learn how to pack their own fruit, so they will be in position to handle their crops if the buyers fail to appear in time to take the apples. It may not always be advisable to handle it themselves, but they ought to be able to do so if occasion requires. This year there were many growers who expected to sell their fruit to buyers who would pack the same, and as a consequence no preparations were made to handle the crop. As the season advanced, and buyers were scarce, the growers found they would have to handle their own crops, and when they began to inquire for apple barrels found the price had been advanced, in some cases as much as 50 per cent over the price asked earlier in the season. This price had to be paid, for the fruit was ready to pick. If the growers all understood the packing of apples, and buyers knew they could depend on the pack, they would be willing to buy the apples in barrels; then early in the season the barrels could have been ordered by the grower, and the buyer could either buy the fruit already packed, or if he preferred to pack it himself, he could pay for the barrels the grower had on hand. There would then be no waiting until the last moment, when every one wants barrels at the same time, for the price goes up, and often the coopers cannot furnish enough barrels at any price.

There is no questions that many apples were lost this season because the growers waited for the buyers, and neglected to order barrels or to engage storage. This is a risky practice, and it is evident growers must early in the season prepare to handle their fruit if the buyers fail to appear.

Indications point to unusually large attendance at all the Western horticultural meetings this winter. The secretaries of the different societies are hard at work preparing good programs, which will soon be ready for mailing. Matters of importance will come up for discussion before each of these meetings, and all persons interested in horticulture should prepare to attend. The time will not be wasted. Go to the meeting, compare notes with other growers, inspect the different exhibits of apples, which will be very fine, and you will find your store of knowledge enriched and you will be all the better prepared to begin the work of the new horticultural year. The horticultural societies need the support of every fruit-grower—and we may add that every fruit-grower needs all the help the different societies can give him.

Special attention is called to the meeting of the Apple Growers' Congress, which will be held at the Southern Hotel, St. Louis, Nov. 18 and 19. Letters from Chairman F. W. Taylor and Secretary Wilson of the executive committee point to a good attendance and a most profitable meeting. This proposed organization is calculated to greatly benefit the apple growers of the entire country, and it deserves the support and co-operation of everyone who grows apples commercially. The meeting will be held at the Southern Hotel, the management of which has made every preparation to care for those who will attend. This hotel generously provided meeting place for the preliminary meeting last August, and will be headquarters for the big gathering to be held on the 18th and 19th of this month. If you desre any information in regard to the apple exhibits, write to F. W. Tavlor, chief agricultural department, World's Fair, St. Louis, Mo. Engage hotel accommodations by writing Henry C. Lewis, manager Southern Hotel, St. Louis, Mo., in which the meetings will be held, and which will be headquarters for the growers.

We call special attention to the offer made in this issue of a copy of The Horticulturists' Rule Book for 25 cents to every reader of the Western Fruit-Grower whose subscription is paid for at least a year in advance. No one whose subscription is not paid is entitled to this book at this price. The special edition which we have had published for readers of the Fruit-Grower is identical with the edition which sells for 75 cents, except that our edition is paper bound. The Rule Book is full of boiled-down facts which every fruit-grower needs. We trust that every reader of the Fruit-Grower will examine the date on the address slip on his paper; if the date shows the subscription to have expired, send renewal today, and inclose 25 cents extra for a copy of this book. Several thousand subscriptions expire during the next three or four months, and we ask everyone to renew promptly. It will help us to carry out some of the plans we have made for the improvement of the paper during the next few months. The Fruit-Grower completes its sixth year with the December issue. Some improvements are contemplated, and we ask the help and co-operation of every reader in carrying out these plans. If your time is out, renew your subscription today, and if you want the Rule Book inclose 25 cents extra. The special edition of the Rule Book will not be ready for several weeks, but orders are booked, and will be filled as soon as the books are ready.

These words of approval from James Wallace, Rogers, Ark., are too good to overlook, especially in view of the fact that every few days we receive a block of new subscribers from Mr. Wallace: "The help and encouragement we get from the Western Fruit-Grower is revolutionizing this country. It strengthens the inexperienced, gives light to the older grower, and broadens and develops every line of horticulture. It is a school of practical knowledge. Apple barreling is about over, and next week will close out evaporating fruit. Prices are reasonably good, and we have passed through a long and busy fruit harvest, highly satisfactory to all." Mr. Wallace believes what he says, for he keeps trying to increase our list of subscribers in his section. May there be many more like him.

Eastern papers complain of a shortage of the potato crop in some sections of the East where much of the supply comes from in ordinary years. Potato handlers are becoming alarmed and predict high prices for the tubers before spring. There is reason to believe that the Western product is selling too low, if this is the case. At Clarinda, Iowa, we are told, potatoes were sold to shippers for 16 cents a bushel during the last week in October. The St. Joseph market for potatoes was only 25 cents a bushel for as fine tubers as ever grew. If the Eastern crop is as short as is claimed, it would seem that Westerners should begin to ask more money for their product.

Missouri farm lands are in demand, and the price is rapidly advancing, just as we predicted would be the case several months ago. Letters from all over the state show that the farmers from other states are investing in Missouri soil, at prices which are low compared with the price which similar soils bring in other states. Missouri is an empire within itself, and is just beginning to be appreciated. Nowadays, one who talks amout "poor old Missouri" displays his ignorance. The state is on the boom in every way, and the wise man is he who invests in some of the state's good farm lands early.

The discussion in this issue in regard to the Ben Davis apple is timely. Old Ben seems to have received a shock this season, but his friends have no doubt he will recover. It may be they conclude that Ben will get over this set-back because "he always has," but it is certain that old Ben's friends have not deserted him. But the discussion we publish is timely and interesting, and it is well worth while for growers who will plant new orchards to consider the market for which their fruit is intended.

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If you do, you should consider the following proposition: The Fruit-Grower has arranged for a special paper-bound edition of Prof. Bailey's Horticulturists' Rule Book, which in cloth binding retails for 75 cents. We will send a copy of this book, postpaid, to every reader of the Western Fruit-Grower whose subscription is paid for a year in advance, for 25 cents. This is one-third of the cost of the regular edition. We make this special offer to place this book in the hands of our readers, and to induce them all to pay their subscriptions promptly. Remember that the book will be sent for 25 cents to only those whose subscriptions are paid for a year in advance. If your time is out now, send money for your renewal, and include 25 cents extra for this most excellent book. If your subscription is past due, pay up for at least a year in advance, and include 25 cents for the Rule Book.

Several thousand subscriptions to the Fruit-Grower expire within the next few months. Those whose subscriptions have already expired, should send their renewal or notification to discontinue the paper. We do not desire to continue to send the Fruit-Grower to anyone who does not desire it, but consider that unless we receive notice to discontinue the paper the subscriber wishes it continued.

The publishers of the Rule Book advise us that the special edition for FruitGrower readers will not be ready for several weeks, owing to the great rush of business for the holiday season, but orders should be placed now, and the books will be sent just as soon as the special paper-bound edition is ready. The Fruit-Grower believes this is an offer which should appeal to every reader, and we will refund money of anyone not well pleased with the book. Pay your subscription for a year in advance and include 25 cents extra for copy of Prof. Bailey's Horticulturists' Rule Book—book will not be sent to anyone whose subscription is not paid in advance.

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Horticultural Meetings

Herewith we present outlines of programs of meetings of Missouri and Illinois Horticultural societies, which indicate that some of the good things are being prepared for the fruit-growers of the west.

The Missouri Meeting.

The meeting of the Missouri Society will be held in Drury College chapel, Springfield, Mo., December 2 to 4. However, the Ozark Apple Growers' association will hold its regular meeting on December 1, and a great many persons will go early, so as to be on hand for this meeting. The Frisco railroad system, embracing the St. Louis & San Francisco and the Kansas City, Springfield & Memphis, with all its branches, will give a half fare rate on certificate plan. Pay full fare going and take a certificate from the agent when you buy your ticket. Return ticket will then be furnished free. Tickets on sale November 30, December 1 and 2. The Kansas City Southern will also sell tickets from all stations direct to Springfield, one fare for round trip, on certificate plan.

The following are the principal numbers on the program, omitting the literary and musical numbers, which always form a prominent part of the evening sessions:

TUESDAY, DEC. 2, 8 P. M.

Opening words, President Robnett.

Addresses of welcome—For the city, Mayor J. E. Mellette; for Greene County, Vice-President G. T. Tippin; for the County society, Theo H. King, president.

Response, Vice-President C. H. Dutcher.

"Flowers on a City Lot," Mrs. J. T. Snodgrass, Kansas City; "Elements of Horticulture in the Public Schools," Hon. W. T. Carringgton, state superintendent schools.

WEDNESDAY, DEC. 3, 9 A. M.

ORCHARDS.

Appointment of committees.

"Location and Elevation for Orchards," Chas. Teuhner, Lexington, Mo.

"Growing and Planting of Trees," A. L. Zimmerman, Weatherby, Mo.

"Pruning and Protection," K. B. Wilkerson, Mexico, Mo.

"Varieties"—Ozarks, Dr. I. R. Lane, Mountain Grove; Central Missouri, G. H. Robins, Mayview; North Missouri, J. A. Kennedy, Ravanna.

"Care of a Young Orchard," Hon. L. B. Woodside, Salem.

"Care of a Bearing Orchard," W. T. Flournoy, Marionville.

"Lessons from Orcharding," W. R. Wilkinson, President Board of Agriculture, St. Louis.

WEDNESDAY, 2 P. M.

"Rotation of Fruit Products," Homer T. Fuller, President Drury College.

"Spraying"—Liquid, J. C. Evans, Harlem; F. H. Speakman, Neosho. Dust, W. D. Maxwell, St. Joseph; C. H. Asling, Springfield; D. A. Rohnett, Columbia.

Experiences of members.

"Packing, Marketing and Storing," C. H. Williamson, President National Apple Shippers Association, Quincy, Ill.

"Canning of Fruits," T. W. Wade, Springfield.

Questions—"Value of Lime in Our Orchards?" "Gas Tar for Borers?"

"Best Orchard Fertilizers," Prof. G. A. Smith, Chillicothe.

"Too Much or Too Little Cultivation," B. F. Wampler, Carthage.

WEDNESDAY, 8 P. M.

"Some Neglected Spots," Mrs. M. C. Smith, Springfield.

"Bitter Rot," (illustrated) Dr. Herman von Schrenk, St. Louis.

"Profitable Distribution," W. A. Gardner, Springfield.

"Prevention Better than Cure," N. F. Murray, Oregon.

THURSDAY, 9 A. M.

Business.

Reports of officers—President, Secretary, Treasurer.

Election of officers.

Delegates to state meetings.

World's Fair, St. Louis, 1904.

"How to Prepare Fruit in Jars."

Reports of Committees—Fruit, Finance, Obituary.

Special Committee—Dr. J. C. Whitten, W. T. Flournoy, J. C. Evans.

Reports from Experiment Stations—"Lessons Learned," W. L. Howard, assistant horticulturist; "New Work," Dr. J. C. Whitten, horticulturist; Prof. J. T. Stinson, Director Mountain Grove station.

"Best Means of Collecting Fruit Statistics," James M. Irvine, St. Joseph.

THURSDAY, 2 P. M.

"A Study of the Codling Moth," M. Oliver Cole, Springfild.

"Insects of the Year," Prof. J. M. Stedman, Columbia.

"Grapes; Some Notes of European Varieties," Joseph Gamble, Brookfield; "Profitable Missouri Varieties," Ruegsegger, St. Joseph; T. A. Birkenhauer, Brandsville.

"Strawberry," J. E. Coppock, Peirce City.

"Small Fruits," W. H. Litson, Jr., Nevada.

"Peaches"—T. M. Culver, Koshkonong; G. W. Hopkins, Springfield; Jacob Faith, Montevallo.

"The Variety to Follow Elberta," G. L. Sessen, West Plains.

"Soils and Subsoils," Dr. E. N. Shepard, Drury College.

"Some Pears," J. E. Thompson, Windsor.

"Protection of Our Birds," August Reese, secretary Audubon Society of Missouri, St. Louis.

THURSDAY, 8 P. M.

"The Apple," Prof. S. A. Hoover, Warrensburg.

"What Schools and Colleges Might Do," Prof. M. G. Kern, St. Louis.

"Horticultural Study in Europe," Dr. J. C. Whitten, Columbia.

"Ornamentation of Country Homes," G. P. Turner, Meadville.

The sum of $150 will be offered as premiums, and it is expected the display of winter apples at Springfield will be the greatest ever made by the society.

The Illinois Meeting.

Secretary Bryant writes that while the program for the Illinois meeting is not entirely filled, the meeting will be a good one in every way and it is expected the attendance will be a record-breaker. The program will be sent, when issued, to all who apply to Secretary L. R. Bryant, Princeton, Ill. One hundred dollars will be offered in premiums, and a good display of apples is expected. The Illinois meeting will be held in the Agricultural building at Champaign, December 17 to 19. The outline of the program follows:

"Experiments in Spraying for Bitter Rot," Dr. J. T. Burrill, University of Illinois.

"Insects Other than the Codling Moth, Injurious to the Fruit of the Apple," E. S. G. Titus, assistant to the state entomologist.

"How to Grow and Keep Fruit for Exhibition," E. A. Riehl, Alton, Ill.

"The San Jose and Other Scale Insects," S. A. Forbes, state entomologist.

"The Peach, Cultivation and Pruning," H. L. Doan, Jacksonville, Ill.

"Results from Cool and Cold Storage Experiments," Prof. J. C. Blair, University of Illinois.

"Pruning of the Apple Orchard" (illustrated), Prof. John Craig, Cornell university.

"Implements and Machinery for Cultivating and Spraying Orchards," W. S. Perrine, Centralia.

"Spraying for the Second Brood of the Codling Moth," Prof. J. W. Lloyd, University of Illinois.

"Practical Results of Spraying," A. V. Schermerhorn, Kinmundy.

"Methods in the Marketing of Fruits and the Organization of Shipping Associations," J. W. Stanton, Richview.

"Winter Cover Crops," Prof. John Craig, Cornell university.

"Parks and Public Grounds for Villages and Small Towns" (illustrated), O. C. Simonds, Chicago.

"The Farm Garden," J. L. Hartwell, Dixon.

"Wild Flowers for Home Decoration," Mrs. E. B. Freeman, Princeton.

Other subjects not yet assigned: "Details in Spraying the Apple," "Cultivation and Care of Orchards," "Improved Methods of Growing Small Fruits."

President's address, reports of officers, delegates to other states, etc.

Special time will be devoted to the Question Box.

The Kansas Meeting.

Sec. W. H. Barnes of the Kansas Society writes that this organization will hold its thirty-sixth annual meeting in the state capitol at Topeka, December 29 to 31. Apple exhibits are invited, with $100 in premiums offered. Program will be ready soon. It will be published in the December Fruit-Grower, or a copy can be secured by addressing William H. Barnes, Secretary, State House, Topeka, Kan.

Notes of the Month.

O. H. Barnhill, Shenandoah, Iowa, reports Irish potatoes selling there as low as 15 cents a bushel, and says one grower shipped over 7,000 bushels of his own raising.

Joseph Meehan recommends that where cherry trees cannot be planted in fall, they should be planted as early as possible the following spring—just as soon as frost is out of the ground. This is in line with the advice now being given by other experienced men.

Advices from New York report that owing to the scarcity of coal, caused by the great strike many apple evaporating plants were compelled to shut down, and thousands of dollars' worth of fruit will be wasted. Apples not worth hauling, but which were all right for evaporating, rotted in the orchards because of the lack of fuel.

The Midland Nursery company, Des Moines, Iowa, recently sent us some samples of the Ideal apple, which is being introduced by that firm. The Ideal is an apple of excellent quality and appearance, and the introducers claim that while the fruit was ripe enough to eat on the 1st of November, it will keep in good condition until April.

A story is going the rounds of the newspapers about a carload of Jonathan apples which was shipped from Kansas City for export to England. According to the story, each apple was wrapped in oiled paper, then in another wrapping of paper, and the price paid was $6 per barrel, f. o. b. Pretty good price for paper, isn't it? Also for apples.

F. P. Spencer, Randolph, Iowa, writes: "I see I am somewhat in arrears to Western Fruit-Grower, and don't want it that way. Couldn't keep my orchard in shape without your paper." So he renews for two years. If your date on express tag shows your subscription to have expired, follow Mr. Spencer's example. If you pay up for a year in advance, we will send copy of Horticulturists' Rule Book for 25 cents additional.

The New Mexico experiment station adds its testimony to those other stations which have claimed it is better to start onion seed in a seed bed or cold frame and later transplant to the field. It requires work to do this, but a better stand is secured and not so much seed is required, and the work of thinning the plants in the field is saved. This applies to commercial fields, as well as where onions are grown for home use.

A letter from Bird Webster, Siloam Springs, Ark., says another cold storage plant was opened there this season in time to receive a share of the apple crop. The new house has 40,000 barrels capacity, and the bulk of the apple crop was stored. The fruit season was unusually good, Mr. Webster says, and ground is being prepared for heavy planting of nursery stock. The outlook for fruit growing is bright and growers much encouraged.

A circular from the Missouri Agricultural college, Columbia, Mo., calls attention to the special short course in horticulture this winter. It is expected that the new horticultural building, costing $40,000, will be ready in time to use for this course this season. Those who are interested should write H. J. Waters, Dean, Columbia, Mo., who will furnish any desired information. The expenses for the course will be light; no tuition is charged, and the total expense for board, etc., will vary from $40 to $60 for each student.

With a cold, wet summer, it seems strange that blight has not been very bad, but I have none on my place, nor have I seen any in this neighborhood. Trees of Garber and Kieffer pears old enough were full of fruit; apples were fine, especially Wealthy and Jonathans. Plums were a light crop, Wyant being best; grapes a failure. The dry fall last year killed most all grapes above ground, no kind escaping. They have made a very good growth from the roots and may partly recover, but I would rather risk setting new.—A. J. Masters, Mystic, Iowa.

A western nurseryman recently wrote us that he placed an order last spring with a wholesale nursery for a large stock of peach trees of small grade. Now the firm which received the order refuses to deliver, and the buyer is having trouble to find small-grade trees among the wholesale nurserymen. This will give a hint to our readers that they should order peach trees early. It is claimed that Elberta trees have already been sold almost to the limit of the supply. Peach trees will be planted extensively next spring, and the feeling is becoming more general that perhaps Elberta will be overplanted. There is danger that this is so.

The University of Tennessee has sent out circulars to the farmers of the state calling attention to the short course in horticulture which is given at that institution every winter. This course is designed for those persons who have not the time to take the four years' course in horticulture, as is the case in other states. Tennessee is rapidly coming to the front as a fruit state, and this short course deserves to be liberally used by the farmers and their sons. The cost is very slight, covering only board, books, etc. Full information concerning the course will be furnished by Andrew M. Soule, chairman agricultural department, Knoxville, Tenn.

Rev. E. Hunger, Big Fork, Mont., writes that having some apple trees nine years planted which did not bear, he pruned the trees severely, cutting back to old wood. The result was a heavy bloom the following season, and he believes this is the way to make trees come into bearing when they are negligent in this respect. Rev. Hunger believes there are some men who need to be severely pruned, too, to get the best good out of them. However, we believe he will find many growers who will not agree with with him as to the treatment of his trees, and the shock brought them into bearing, just as a sick tree often bears its heaviest crop just before it dies. It is the last effort of the tree to fulfill the purpose for which Nature intended it. If the trunks of the trees had been girdled in June, it is likely the result would have been the same, and the permanent injury to the trees lessened. It is dangerous to cut large limbs from apple trees .

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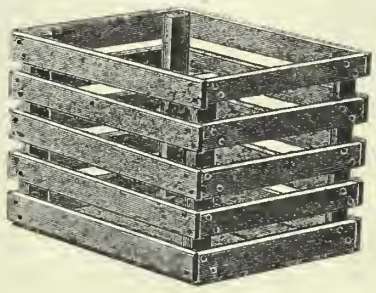

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Varieties of Apples and Peaches.

Prof. John T. Stinson, director of the Missouri State Fruit Experiment Station, Mountain Grove, Mo., has just issued a most excellent bulletin on "Varieties of Peaches and Apples," giving the lists of varieties which are recommended for commercial planting, also for home orchards, in every section of the state. This bulletin is most interesting and helpful to Missouri farmers who contemplate planting apple and peach trees in the near future.

Prof. Stinson says there is a tendency on the part of beginners to plant too many varieties for best results, and it is to help such persons that this bulletin is intended. Those varieties which are generally recommended by growers all over the state may be accepted as pretty safe sorts to plant. The subject of mixed planting of apples to secure perfect fertilization of blossoms is discussed, but no definite conclusions are expressed. Reports will be submitted later on this subject.

Three varieties of apples which have done well in South Missouri, and which are as yet not well known elsewhere, are described at length and specimens of the apples were photographed, from which cuts were made. These are the Ingram, Nixonite (Ozark Mammoth) and Payne's Late Keeper. Other varieties are described at length, and the good and bad qualities of a number of them being pointed out. It is interesting to note the report concerning Huntsman, which Mr. Kiely uses as an illustration of the high prices which some varieties of apples bring, as compared with price of Ben Davis. The bulletin says: "Huntsman is subject to bitter rot, and for that reason it is not advisable to plant it in commercial orchards. It sunburns in some seasons and is affected by apple scab. Bitter rot often attacks it earlier than any other varieties in the orchard, and it is liable to spread from it to other varieties not so subject to the disease. If it were not subject to this disease it would find a place in the commercial orchards."

Prominent growers in all parts of the state give the list of varieties they would plant, and also give a list of varieties they have tried and would not recommend. This list of discarded varieties is as interesting and as helpful as the list of sorts recommended.

W. T. Flournoy, Marionville, Mo., recommends Ben Davis, Gano and Jonathan. He would not again plant Rome Beauty, an uncertain bearer and fruit falls badly; Mammoth Black Twig, Arkansas Black and Bellflowers are shy bearers; Willow Twig and Huntsman are subject to bitter rot. Mr. Flournoy recommends that planters consult local fruit growers as to varieties to plant, and not tree agents.

F. H. Speakman, Neosho, chooses Jonathan, Grimes and Gano as best three for commercial orchards. Has discarded Missouri Pippin, on account of being a poor, short-lived tree. For peaches he recommends Family Favorite, Old Mixon Cling, Elberta, Salway, Heath Cling.

Henry, Wild, Sarcoxie, would recommend Ben Davis, Gano, Payne's Late Keeper. Mr. Wild's list of those he would not plant commercially is a long one: Arkansas Black, Babbitt, Baldwin, E. G. Russett, King, Big Romanite, Rainbow, Willow Twig, Lawver, Large Striped Pearmain, Nickajack, Shannon Pippin, Walbridge, Swaar, Nero (Minkler). In peaches Mr. Wild recommends Elberta, Old Mixon Cling, Heath Cling, Carman, Early York, Champion, Crosby, Salway, Stump, Krummel's Late, Henrietta, in the order named, the three first named being preferred sorts.

G. T. Tippin, Nichols, recommends Ben Davis, Payne's Keeper, Ingram, for three best apples. In peaches the list is: Champion, Elberta, Emma, Salway, Picquet's Late.

J. E. Thompson, Windsor—Gano, Ben Davis, Jonathan. Peaches—Elberta, Crosby, Stump or Champion, Crawford's Early and Late, Heath Cling, Salway.

D. A. Robnett, Columbia — Ben Davis, Gano, Jonathan. Peaches—Elberta, Champion, Mountain Rose, Heath Cling.

K. B. Wilkerson, Mexico — Ben Davis, Gano, Jonathan, York Imperial. Peaches—Elberta, Champion, Crawford's Late, Wonderful, Crosby.

R. J. Bagby, New Haven — Ben Davis, Gano, Jonathan, Grimes' Golden, Jonathan. Peaches—Mr. Bagby's

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Anyone can own such shares or acres. Supposing you buy only five. You pay $20 a month for 12 months, then $10 to $25 a month for a limited period, until you have paid the full price of the shares in the present series, $264 each; but during the period of these payments, you will have received dividends amounting to $210 per share; hence, the actual net cost of your shares, or acres, is only $54 each, and you own real estate then worth at least $2,500, and from the maturity period onward longer than you can live, your five acres, or shares, will yield you or your heirs a yearly income of $1,200. This is a most conservative estimate (based on government reports of the United States and Great Britain) for 200 trees per acre, and figuring them as yielding each only two pounds of crude rubber per year, a total of 400 pounds at 60 cents net per pound. Of course if you buy 10 shares your income would be $2,400 yearly; or, better still, 25 shares will yield $6,000 a year.

If we can prove to you that five shares in this investment, paid for in small monthly installments, will bring you an average return of TWENTY-FIVE PER CENT, ON YOUR MONEY DURING THE PERIOD OF PAYMENT, and will then bring you $100 A MONTH FOR MORE THAN A LIFETIME, we could not keep you out. Send us at once $20 as the first monthly payment to secure 5 shares—$40 for 10 shares—$100 for 25 shares ($4 per share for as many shares as you wish to secure). This opens the door for yourself not to wealth, but to what is far better, a competency for future years when, perhaps, you will not be able to earn it. We already have hundreds of shareholders scattered through 20 states, who have investigated and invested. Our literature explains our plan fully and concisely, and proves every statement. We will send it to you immediately on request.

Secure your shares at once. The opportunity to get them at the present price will not remain open for any fixed time. The price has already advanced twice in five months—$12 each time—and is subject to a further advance immediately—possibly without further notification to the readers of the Western Fruit Grower.

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list of peaches is most interesting, for he is an extensive propagator of peaches, and tests them fully. His recommended list is long, as follows: Elberta, Captain Ede, Salway, Fitzgerald, Champion, Stump, Gold Dust, Crawford's Late, Golden Gate, Queen, Miller Cling, Heath, Henrietta, Wonderful, Watthews' Beauty.

W. G. Gano, Parkville—Ben Davis, Gano, Jonathan. Peaches—Elberta, Champion, Salway, Picqquet's Late, Emma, Carman, Mountian Rose, Early Rivers.

L. A. Goodman, Kansas City—Gano, Ben Davis, York Imperial. Peaches—Elberta, Salway, Family Favorite, Mountain Rose, Champion, Old Mixon, Reeves' Favorite, Mrs. Brett, Heath Cling, Smock, Picquet's Late.

N. F. Murray, Oregon, Mo.—Ben Davis, Jonathan, Winesap, Gano. Peaches—Champion, Crosby, Elberta, Old Mixon Free and Cling, Triumph, Heath Cling.

The lists of many other growers are given, but we publish these as representative of the opinions of prominent growers in different sections of the state. The bulletin will be sent free to residents of Missouri who will send for it, and is worth preserving. Address Prof. John T. Stinson, Director Experiment Station, Mountain Grove, Mo.

A Careful Fruit-Grower.

The accompanying cuts are made from photographs of sections of the farm of Z. T. Turner, Eleroy, Ill., and show a corner of his strawberry bed, and also his system of growing small fruits among tree fruits. Mr. Turner sent us a number of photographs of his place, all showing him to be a painstaking cultivator, but the photographs were such that they would not make good cuts. The two illustrations shown do not fully represent the views as did the photographs. One of the photographs showed a Yellow Transparent apple tree bearing very small. We have had many other reports this season commenting favorably on this variety, which seems to be becoming quite popular as an early variety. It is a good apple, with plenty of acid, making a good cooking apple. Some of the objections to it are that the fruit shows every slight blemish very plainly, and in some places the trees blight badly. The tree bears young and does not attain to a great size.

Three New Farmers' Bulletins.

The U. S. Department of Agriculture has recently issued Farmers' Bulletin No. 154, entitled "The Home Fruit Garden: Preparation and Care." This bulletin was prepared by L. C. Corbett, horticulturist of the Bureau of Plant Industry of the Department, and contains much information in regard to the laying out and care of small fruit gardens.

After stating the object of a fruit garden, the bulletin describes the relation of the home garden to the fruit interests, the influence of amateur fruit growers upon communities, changed conditions of fruit culture, and the advantages and pleasures of the home fruit garden. This is followed by directions for cultivation of the garden, including modification of the soil, preparation of plants, pruning and protection. Suggestions are given for adapting plants to the conditions prevailing, combining plants of various habits and growth, and for a combined fruit and vegetable garden.

A list of varieties of fruits for home gardens of different areas is also given.

Another bulletin in the same line is Farmers' Bulletin No. 156, entitled "The Home Vineyard, With Special Reference to Northern Conditions." This paper was written by W. H. Ragan, special agent of the Bureau of Plant Industry, engaged upon pomological investigations, and was prepared for the guidance of persons who wish to grow grapes in a small way rather than for the extensive vineyardist. The author says the grape should be more frequently found growing on the farmer's premises. It is easy of culture and brings almost certain reward for the care and attention bestowed upon it. It is a mistaken notion that its culture requires special skill and knowledge beyond his abilities. The writer hopes that this bulletin may help to remove this erroneous impression from the minds of farmers and thus render the grape more popular with them.

Athird new publication is Farmers' Bulletin No. 157, entitled "The Propagation of Plants." In this bulletin Prof. L. C. Corbett, horticulturist of the Bureau of Plant Industry, treats the subject in a brief, simple and practical manner, with the purpose of assisting and encouraging farmers in the propagation of plants for ther own use, especially small fruits,, grapes, and orchard fruits.

A knowledge of how plants may be produced by natural or artificial means is of great importance to agriculturists of all classes, and especially to those engaged in the various branches of horticulture. There are, for instance, so many benefits to be gained by the local production of nursery stock that fruit growers of a developing region cannot afford to neglect this art. The introduction of dangerous pests can be avoided, scions and buds from trees thoroughly acclimated can be obtaned, the young stock will not be forced to suffer the shock of long transportation and a change of climate, and last, and by no means least, the orchardist can have his trees grown from scions or buds from his favorite trees.

Directions are given in the bulletin for propagating plants by seed, by cuttings, by layering, by various methods of grafting, and by budding.

Copies of these bulletins will be sent to any address on application to Senators, Representatives and Delegates in Congress, or to the Secretary of Agriculture, Washington, D. C.

Nuts for Profit 158 pages; 60 illustrations; price 50c; testimonials free; Japan walnut seed, by mail, 25c per dozen; $1 per 100. J. R. PARRY, PARRY, N. J.

Our Strawberry Plants

are growing finely. The extreme drouth of early spring cut our acreage in two, but we have a fair acreage remaining, and as weather has been very favorable since May, we hace promise of several million of best plants grown. A number of new varieties entirely dried out and our catalog for spring of 1903 will give you a great deal of information on varieties best suited to our western country.

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Our Raspberry plantings and will have a very large supply of plants for our fall and spring of 1903. Also Blackberry plants, and don't forget that we nave 150,000 1-year-old asparaggus plants; best carieties and largest 1-year-old plants you ever saw. If you want plants this fall, write for prices. Address

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I grow and seel that kind. I have planted extensively of standard and well tested varieties for next springg's trade. My Motto: Choice tSock, True to Name and Free from Disease. Catalogue issued January 1st. Send for it.

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A Good SPRAMOTOR is a Joy

A pretty good spraver is an abomination, for it will not save, s you fondly hoped, a percentage of your crop.

With a SPRAMOTOR a farmer can improve his Fruit Crop 80 per cent; rid his stock of the annoyance of Horn Fly, thereby increasing the butter yield one-third. He can destroy the Wild Mustard (Charlock) in the growing grain without injuring the crop, and the improvement in the grain yield will more than repay the cost, and finally he can paint his buildings with SPRAMOTOR COLD WATER PAINT.

Full particulars, and 80-paged Copyrighted Treatise to all who mention this paper.

Canadian Factory, London, Ont. SPRAMOTOR CO., 109 Erie Street, Buffalo, N. Y.

SPRAGUE CANNING MACHINERY COMPANY

SALES OFFICE: 802 MASONIC TEMPLE, CHICAGO, ILL.

Choicest Fruit and Ornamental Trees,

Shrubs, Plants, Bulbs, Seeds. 40 Acres Hardy Roses. 44 Greenhouses of Palms, Everblooming Roses, Ficus, Ferns, etc. Correspondence solicited. Catalogue Free. 49th Year. 1000 Acres.

THE STORRS & HARRISON CO., - PAINESVILLE, OHIO.

Strawberry Plants

Our beds are looking fine and our stock will number over 2,000,000. Spring catalogue ready January 1, 1903.

J. W. JONES & SON, Allen, Md.

STRAWBERRY GOSSIP

Every year thousands and thousands of dollars are spent by plant growers in printed matter and postage. Some of this literature reads as if it were sent out for purely philanthropic reasons, but it is not. It is sent out purely for the purpose of stimulating and drawing trade to the publisher. The catalogue is an inexpensive edition of the traveling man. It is sent to prospective customers to explain and praise the goods its sender has for sale and to give prices on them. Into its make-up enter the same elements as make up the character of him who issued it. As some merchants build up their business by selling honest goods at fair prices, while others engage in the bargain-counter, fire-sale methods, so some plant growers, seedsmen and nurserymen build on honesty, truthfulness and square dealing, while others bait their hooks with misrepresentations and fish for suckers and look for a new crop of them every year.

The public cannot tell in advance to which class a dealer belongs, and sometimes it takes several years to find out, but every man's catalogue bears some of the marks of his personality.

That of an honest man is pretty sure to reflect his honesty, and that of the dishonest one is almost certain to leave a cloven foot exposed somewhere. As a rule, a thoroughly honest man does not think he is the only one of the kind in his community or his line of business, and he does not claim to be. When a man does convey the idea that he is the most honest man in the world, he is a fair person to suspect. When a grower says, "We have special rates with the express companies," he is either very unfortunate in his choice of words or he is wilfully misrepresenting. When a catalogue says nothing ill of any variety, but, like an obituary artist, deals only in eulogies, not much dependence can be placed upon it. If its criticisms are made only on those varieties on which prices are quoted only for small quantities, it is pretty evident that the writer is playing for a reputation for honesty. If all descriptions appear to be discriminating, giving praise where it is merited and criticism where it is deserved, it may be taken for granted that the catalogue is made up on honest lines and that its author does business on similar lines.

There is considerable variation in the description of varieties by different people. This is unavoidable. In the first place there is great variation in a variety itself in different places and under diverse conditions. But the difference arises mostly from the personal characteristics of the man doing the describing. Take a thoroughly practical man, for instance, one who is in the berry business for revenue only. To him the variety that produces the revenue is the one entitled to all the superlatives. He honestly exhausts his vocabulary of words of praise in describing the Clyde, Haverland and Bubach. Another man looks at the matter from a different standpoint. To him the variety deserving praise is the one which produces fruit that will take the most prizes at an exhibition, fruit which shows the highest development in size, quality, gloss, regularity, smoothness and color. The variety may not be productive. It may be subject to rust. He can overlook that as he looks at the beautiful berries and he uses his superlatives in laudation of his favorites. The plant man looks at the matter from a different standpoint. His crop is neither much fruit nor fine fruit; it is plants. The variety that makes fine plants and lots of them comes in for praise from him. Thus I recognize that the Parker Earle is one of the most valuable varieties we have, but I would not desire to call too much attention to it in a catalogue, as it does not run enough to be profitable to a plant grower. It may be that a small tendency to run shows higher development in a variety and a further remove from the original wild ancestor, but it also shows, very frequently, a weakening in constitution which makes the variety less able to withstand rust.

Practically all catalogues show the plant growers' tendency, and one of the other two above mentioned. If one is going to grow berries commercially, he should take care not to be too much influenced by the glowing descriptions of show varieties, while an amateur should not let any amount of praise counterbalance one shortcoming in size, color, form or general appearance.

In choosing varieties from a catalogue, one should have in mind the general characteristics he wants and look for varieties having them. He cannot try everything, and it is useless for him to waste his time and money trying to grow monster berries fom varieties whose tendency is to grow great numbers of small berries, or to get bushels from varieties whose chief point of excellence is quality and not productiveness. Unless a person is looking for show varieties, he is more certain of finding something valuable in the list of great runners than in that of those that run sparingly. The first thing that should be insisted upon is vigor of growth. If it does not manifest itself in running, it should do so at any rate in freedom from rust.

One point in catalogues probably has more than anything else to do with determining what dealer shall have the order. That is price. Everybody who has examined many catalogues has been struck with the great variation in prices of one variety among different dealers. Some of these variations have no foundation in real value. In some instances they are made arbitrarily to draw orders towards a variety of which a grower has a large stock, or from one of which his stock is small. But aside from these, the prices of some dealers average high and those of others low. Some dealers have high prices on dozens and low ones on thousands, showing that they desire the wholesale trade. Others have their prices on dozens down to the average, but those on thousands high. They are working for the retail trade.

When one dealer offers plants of a certain variety at $2 a thousand, while another charges $4, the natural tendency is to buy from the former, but one that does so seldom gets twice the value for his money. My experience has generally been that a man gets about what he pays for. When he buys cheap plants, he gets his money's worth, so does he when he buys those at a higher price. Unfortunately, a strawberry plant is considered merely as a strawberry plant. We buy trees by their age, size, straightness or form. We pay more for asparagus plants two years old than for those only one. Fruit demands a price largely according to its size and condition. Roses sell largely according to the length of their stems. But a strawberry plant is a strawberry plant. With many fruit growers it appears to make no difference whether the plants run 15 pounds to the thousand or 40; whether they have been grown with plenty of room or crowded and forced by nitrogenous manure; whether they have been carefully handled from the time the fork was put under them till the cover was nailed on the crate or treated roughly and carelessly. These different conditions are not represented with exactness in the price, but they are to a considerable degree. There are some good growers who sell below the average price, and some others, little or no better, who sell above it; but the person who thinks he is getting four dollars' worth for two generally gets fooled, and he who pays a reasonable price is not generally cheated by doing so. This fact is one reason why horticultural publications do not like to quote prices of nursery stock—it looks as though the dealer is using the price of his stock as the chief inducement to buy from him. Of course, it often happens that some nurseryman will have a surplus of one kind of stock and will quote a special rate on same, but as a general proposition it is not a good plan to quote prices in nursery advertisements. Many things besides the price are to be considered, and the cheap prices should not be sufficient reason for ordering from such ads. Get the catalogue of the advertiser and study it carefully. You will then learn what other arguments are offered by the nurseryman besides the prices he quotes.

In this business, as in others, there are two classes of dealers. One attracts the people who are always looking for cheap things. The other demands fair prices, sells good goods and gets the class of customers who want quality rather than cheapness. The people who seek cheap things may be the shrewdest, but I have noticed that many of the men who have made a success as truckers, florists and fruit-growers have a way of buying their seeds and plants at high prices, working high-priced land, using high-priced fertilizers and selling high-grade products to high-class customers, while the people who run too much to cheapness, where they are spending money are likkely to run against the same tendency in others when they are seeking them as customers.

There is one characteristic about the prices in many catalogues that I do not like. They are not given seriously. They are only a "bluff"—something to be got if the customer is "easy" enough to pay them. I admit that some variation in prices is justifiable. Sometimes a dealer can afford to cut a price on something of which he has a surplus to secure an order for something which has a big margin of profit in it, and late in the season one is justified in selling surplus stock at reduced rates in order to get rid of it. But to advertise in a catalogue, "We will not be undersold by any responsible dealer," "Send us your list of wants and get our special prices," is putting a premium on greed. It means that the man who, like a gentleman, takes the dealer to be sincere in his advertised prices and sends his money with his order, gets only a dollar's worth for a dollar, while one who "Jews" prices down, makes correspondence, takes time and demands all he is entitled to and some more, gets for his dollar a dollar and a half's worth. It is refreshing to read in a catalogue, "These are our special prices and are given here to save correspondence." That is fair. I know one large grower in Michigan who last spring did not cut his catalogue prices in any instance but one, and that was the case of an old customer who was buying over a hundred dollars' worth of plants and asked a small discount. It appears to me that the tendency in this matter is improving, and it appears likely that in time those who have a different price for each customer will be left to supply the wants of people who will drive the hardest kind of bargains and get all that is coming to them.

WM. S. CRAWFORD.
Cuyahoga Falls, Ohio.

Notes From Dr. Greene.

During the summer of 1900 I found a block of my Jonathans dying of some sort of root disease. Hacing noticed the tobacco dust cure I concluded that stems would do just as well if properly applied. I thought such emphasis for dust looked a little "advertisish." So I scraped the dirt off as clean as I could for a distance of three to five feet from twelve-year-old trees. Then I scattered bone dust about the roots, so as to almost cover them. Then onto this I tramped several inches of tobacco stems. Then on this I put several inches of dirt; then thoroughly wet the whole mess and covered it with a coat of mulching to retain the moisture. I thus treated twenty trees. Four of them went on and died, but the rest came out all right, and have born a good crop and made fine growth this year. Tobacco as the medicine and bone dust as ready food for new rootlets. I believe every fruit grower should raise plenty of tobacco to treat all his trees of every kind. It might be planted and cultivated as usual or sown and mown and cured as forage is. And some planted around trees, especially on the southwest side would be a good thing.

At the State Society meeting at New Haven, Mo., in the summer of 1901, I was requested jointly by Prof. Stedman, the entomologist, and Mr. Hazeltine, the moth-trap man, to make the following agreed test of the latter's lamp moth catcher: I was to hatch a lot of moths from wormy apples and put them in a room known to contain no other moths. Then I was to place one trap at one end of the room in the dark and the other one in the opposite end of the room, lighted by directions, and note the result. Mr. Hazeltine promptly sent me the two traps for the test; but being away from my fruit farm, I did not get to make any test till this last summer—1902; and then I did not get to make it just as agreed upon, and what I did may have been no test at all. But this is what I did and did fairly: I tied rags made of gunny bags around a hundred apple trees. Then when myriads of worms

$100 Premiums

Get our 1903 Catalog ===it's free===on Nursery Stock and Seeds

The book will tell you all about the $100.00 in Cash Premiums on Our Seed Corn. We have a complete line of nursery stock; Apples, Pear, Peach, Plums, Japan, best varieties; Cherries, Grapes, Blackberries, Raspberries, Currants, Gooseberries, Strawberries, 40 varieties, all on new land, new beds; Roses, Carolina Poplars, Soft Maples.

Garden Seeds
Seed Corn
Seed Potatoes

We want agents to sell our stock. Write us. We pay weekly.

J. M. T. Wright Nursery Co.
Portland, Indiana

Strawberry Plants

We are now shipping Strawberry Plants to Western and Southern Planters. Lady Thomu-Crescent, Michel's Early and Middleton's Early, at $2 per 1,000. Aroma, Brandywine, Bubach, Gandy, at $3 per 1,000. Cash with order.

Plants packed in light covered baskets, with plenty of damp moss. Address all orders to

H. Lightfoot, Chattanooga, Tennessee

STRAWBERRY PLANTS

I have a fine lot of choice strawberry plants. All the best varieties. Write for prices. W. S. TODD, Greenwood, Del.

Strawberry Plants

Fancy Fruit, Selected Plants, grown on improved methods. Proper pollination. Five weeks marketing season. Yield nearly $400.00 per acre. Cheap plants are no comparison. Price, freight or express prepaid, $1.50 per 100; $10.00 per 1,000.

E. MOHLER, Plattsburg, Mo.

AMERICA'S GREAT BLACKBERRY

The Mammoth

If you want a real good blackberry, a berry that will make money for you, then plant the Mammoth. It is a very large berry, bears heavy crops, and is a great drouth-resister; brings fancy prices, ripens extra early. Send for catalogue. RONSSE & BOLLINGER, Box 953. Riverside, Calif.

BILLINGS NURSERY

Billings, Mo., 20 miles southwest of Springfield; has a general line of all kinds of Nursery Stock. Apples a specialty. I have 20,000 Payne Late Keeper, 1 year; 50,000 Soft Maple. I have a fine stock of 2-year Apple for the fall trade. My stock is true to name.

G. W. TRIBBLE, Prop., Billings, Mo.

Baldwin Cherry Trees

The Largest, Sweetest and Earliest Morello. The Commercial Cherry of the Twentieth Century. 20,000 Genuine Baldwin Trees to offer for Fall and Spring. 200,000 Apple, Peach, Plum, Pear, etc., at wholesale. Scions and Buds from 10,000 fruiting trees in orchards.

S. J. BALDWIN, Nurseryman
SENECA, KANSAS

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.
PAW PAW, MICH

SPADES AT 37½c EACH

The American (Hoover's patent) is two spades connected by a T shaped bolt, making the only detachable post hole digger that will dig a square, three cornered or a square faced hole, and do it in less than one-half the time and with half the labor necessary with any other make of tools. To induce you to give it a trial we will sacrifice all profit on a limited number and sell them at 75c per digger. But can supply no dealers at this rate. J. S. BOLTON, Sole Manufacturer, MOLINE, ILL.

MISSOURI FARMS

That's what I sell. Duplicate them in Illinois or Iowa for twice the money and I'll pay for your trip out here.

Some Samples::

457 Smooth acres, 33 miles east K. C., joins railroad town; 9-room house, barn, 300 acres wheat, lots fine blue grass, good water; black soil. $57.50 per acre.

140, same location; big house, barn 40x70, 3-story; living water; 2¼ miles to railroad town of 2,500; 60 wheat, 20 grass, balance other grains; lays fine. Price $55.00.

Big list stock, grain or fruit farms, Missouri, Kansas, Arkansas or Oklahoma, and neat pocket map, either state, 10c stamps or silver. Give me an idea of what you want, I'll do the rest.

LOTT, THE LAND MAN
128 W. 8th, Kansas City, Mo.

Farms for Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, of farms wanted, which are intended for this column, will be inserted for 2 cents a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send two cents for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

MISSOURI FARM FOR SALE—310-acre farm in Clinton County, Mo., in midst of best blue-grass section, for sale for $14,000. Farm is 5½ miles southeast of Lathrop, ½ mile northwest of Converse, on A., T. & S. F. Ry.; 30 acres timber, balance suitable for grass or cultivation; young family orchard; good new house of 7 rooms, large barn, cattle pens and sheds, windmills, tanks, etc.; on rural telephone line. This farm is in section where crop failure is unknown, and land is appreciating in value rapidly. Address G. W., care Western Fruit-Grower, St. Joseph, Mo.

FOR SALE—Fruit farm of 55 acres, close to city; 1,500 bearing trees of the best budded varieties of Peach, Plum, Apple, and Pear, besides several hundred trees not yet in bearing; 5 acres of Blackberries and Raspberries, vineyard, etc. New four-room cottage. For particulars address B. J. SILLIMAN, Winfield, Kan.

FOR SALE—On account of ill health, or will trade for good fruit farm, a valuable business. Address B, care this paper.

FOR RENT—Fruit, grain and stock farm in Southeast Nebraska; near station; about 185 acres, 50 acres in orchard. Will rent to right man with teams and help. A number of farms to sell. HENRY C. SMITH, Falls City, Neb.

FOR SALE—80 acre farm in the Elkhorn valley; well improved, young orchard, small fruit, 10 acres of alfalfa, tame grass pasture, balance of land under cultivation; good well of pure water. If you want to buy a good home it will pay you to investigate and see this one. Address D. J. TAYLOR, Clearwater, Antelope Co., Neb.

FRUIT FARMS for sale. Send for my bargain list of farms and guide to fruit belt. W. J. Cheney, Cuba, Mo.

FOR SALE—440 acres of land in Texas County, Missouri, located one mile from the thrifty town of Cabool, on the Frisco Railway. It is native timber and surrounded by improved farms and fruit orchards. It is of the character so well known in the Ozarks as the best for fruit, pasture or upland farming. Will sell htis land on terms to suit. Ed T. Orear, Jefferson City, Mo.

FARM FOR SALE—Estate land for sale; choice tract of 377 acres, $5,665; easy terms; Taneyville, Mo. Address Mrs. Jonas Miller, Wapello, Iowa.

FOR SALE OR EXCHANGE—Bearing five acre orange grove, one mile railroad town, 250 miles south of Jacksonville, Fla.; five-room house and barn. Had over four hundred boxes last year. Very cheap. H. F. Davis, Holland bldg., St. Louis, Mo.

Good Government land under co-operative irrigation. For particulars address COLORADO CO-OPERATIVE COMPANY, Pinon, Montrose Co., Colorado.

OKLAHOMA LANDS

Are rapidly appreciating in value. If you are thinking of buying a farm in a good wheat country, write to me or call and see me at the nursery. I know of a few good farms for sale that are bargains.

F. B. Orton, Kiowa, Kan.

FOR SALE

Homes or orchard lands in Southwest Missouri. Land cheap; finest orchard soil in United States. For particulars, write to
BEN HANCOCK, Scholten, Mo.

Thirty days only, apple trees, 12c; peach trees, 13c; cherry trees, 29c; pear trees, 33c; plums, 29c; Concord grape vines, 4c. All trees 4 to 5 feet. They are fine and sure to please. We can furnish all leading varieties. Park & Martin, Ottumwa, Ia.

had gone under them to pupate I took these wormy cloths into a room that had been empty and tightly closed for more than a year. In due time the moths began to hatch, and I had clouds of them—windows of the room almost darkened with them trying to get out. The contention was whether the moths would be attracted by a light or not. So I placed one trap, or tub, at one end of the room in the dark, and the other trap, lighted, at the opposite end of the room. When I next went into the room that evening to see how things were going on, my hand lamp at once became the center of a whirlwind of moths.

Next morning I found the lighted tub to contain hundreds of these moths, while the one in the dark held but two individuals. Then I tried it again the next night in the same way, when I got perhaps 100 in the lighted trap and not one in the dark one. The light had attracted them away from the dark trap. I then caught a score or more of these same moths in the windows of the room and put them carefully in a wooden box and sent them to Prof. Stedman for identification. He answered that some of them were codling moths, but they were so mashed he could hardly tell them from "the other."

Now, I don't know that any of these were codling moths, not being an expert mothologist, but I'd bet my head that nineteen out of every twenty, if not all of these millers were the exact same breed. So far as I could see, they were all alike, anyhow. They were little brown moths from half inch to three-eighths in length, with wings tipped with a little deeper brown than the rest. To my mind the only question in the case is whether these worms came out of the apples or not. If they did, then the apple moth can be attracted and caught in this way. But of course I don't know how many more friends than enemies might be caught out in the orchard. I tried it but one night out, and it rained and put out my light. But I caught quite a number of different kinds of millers and bugs, but only two or three of the sort I hatched in the room. Any one else can make the same test with a tub of water and coal oil lamp; but of course not so well as with the real moth trap itself. The water should have oil on it. Next year I hope to be able to hatch the moths from wormy apples and make the test as agreed on. But let me say that catching worms thus by cloth is a very dangerous business, provided they are real apple worms; for if neglected the cloths would be great breeding nests. I have seen, I think, 500 cocoons on an old pair of breeches hung up in the fork of an apple tree, all hatched out. My friends say I have the most wormy apples because I spray the most; and it looks that way. J. W. GREENE.

Chillicothe, Mo.

(In regard to Dr. Greene's test, we believe no one will claim that is the way to tell whether or not the traps set in an orchard will catch the codling moth. The conditions in which the moths were placed were most unnatural, and that the moths were attracted by the light in the room is no indication that the same result would occur in the orchard. The test which Prof. Stedman publicly proposed at the New Haven meeting was this: Take some apples known to contain larvae of a codling moth, and place it in a box or some other receptacle in which the moths could be confined, and allow the insect to change to the moth state. This will indicate that the moths are also emerging from the orchards. Then set the trap in the orchard as directed by the manufacturer and carefully preserve all insects caught. Send the whole lot to some reputable entomologist and ascertain how many of the insects are really codling moths. This was the real practical test proposed, and while Dr. Greene's experience is interesting, it will not prove what the results would be in the orchard.—Ed.)

Roosevelt's Epigrams.

It is almost as irritating to be patronized as to be wronged.

The country districts are those in which we are surest to find the old American spirit.

A man to be a good citizen must be a good bread-winner, a good husband, a good father.

The man who lives simply, and justly, and honorably, whether rich or poor, is a good citizen.

Almost all of our great Presidents have been brought up in the country, and most of them worked hard on the farms.

The forces which made these farm-bred boys leaders of men are still at work in our country districts.

In the long run the only kind of help that really avails is the help which teaches a man to help himself.

Hardness of heart is a dreadful quality, but it is doubtful whether in the long run it works more damage than softness of head.

Material prosperity without the moral lift toward righteousness means a diminished capacity for happiness and a debased character.

We live in an era when the best results can only be achieved, if to individual self-help we add the mental self-help which comes by combination.

The man on the farm, more than any other of our citizens, today is called upon continually to exercise the qualities we like to think of as typical of the United States.

The true line of cleavage lies between the good citizen and the bad citizen, and the line of cleavage may, and often does, run at right angles to that which divides the rich and the poor.—From address at Bangor, Me.

THAT SEQUEL.

It was promised last month that there should be a sequel to the story on page 16 of the October Fruit-Grower, of how "John and Mandy Brown" and others came out on a deal for some mining stock, in the Arizmo Development Company, of this city. The secretary of the company was disappointed at first, in the responses to his invitation to Fruit-Grower readers to send for literature of the Arizmo Company and become interested in its stock, in which he himself has the utmost confidence, and decided not to offer a "sequel" to the story; but, later, interest in the matter has so increased that the sequel to the story is merely postponed.

A bottle of Prickly Ash Bitters kept in the house and used occasionally means good health to the whole household.

Cheaper than Cornstalks

Protect Your Trees with
Veneered Tree Protectors

A positive protection against rabbits, mice, sun-scald, hot winds and barking by careless cultivation. Will last for years. Send for circulars.

$1 per 100, $6 per 1,000
10 in. wide, 20 in. long.

Hart Pioneer Nurseries
FORT SCOTT, KAN.
Wholesale Growers of Nursery Stock.

$100 Premiums on Corn

$30,000 in gold on first prizes.
See our 1903 Catalogue.

J. M. T. WRIGHT NURSERY COMPANY
PORTLAND, IND.

For information as to Fruit and Trucking Lands, Grazing Lands, Soil and Climate in Virginia, North and South Carolina, Georgia, Alabama and Florida, along the

Atlantic Coast Line Railroad

Write to WILBUR McCOY,
Agricultural and Immigration Agent, Jacksonville, Fla.

Prices Cut Fifty Per Cent

We now have the finest and most complete line of nursery stock ever grown in Arkansas. If you, Mr. Planter, are interested in fine fruit at a small outlay of cash, then send for our catalogue. It tells you all about the fine things we have. Write to-day to

Yarbrough Bros., Stephens, Arkansas

Best Nursery Stock LOWEST PRICES

AT THE OLD RELIABLE
Capital City Nurseries
Established 1869. Packing and Shipping Facilities Unexcelled. AGENTS wanted.
C. L. Watrous, Des Moines, Ia.

FRUIT-GROWERS should have neatly printed letterheads, envelopes, etc. I print them cheap. Samples free. T. M. JONES, Goreville, Ill.

FURNAS TREES PLANTS and BULBS

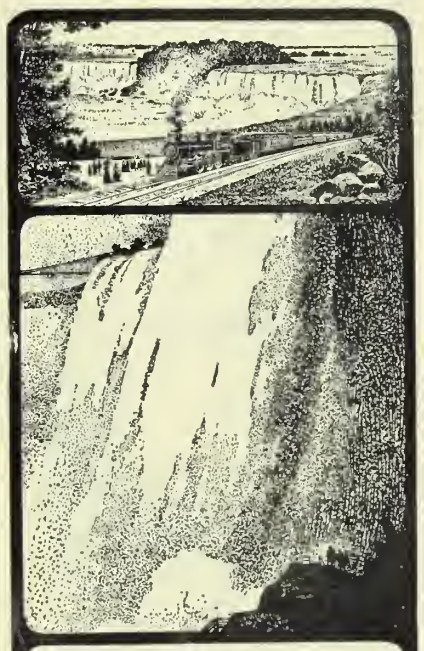
are the best to be had. Our customers are pleased and recommend our stock to others. Give us a trial order and you will do the same. Here are some of the advantages of dealing with us: Prompt, accurate filling of orders, certainty of receiving grade of stock ordered, prices that are right, careful packing. Stock true to name and free from all disease and scale, liberal count and liberal extras. Free advice on all horticultural subjects.

If you are interested in fruits, flowers or vegetables, we want to get acquainted with you. We want to sell our stock, but remember, we shall be pleased to correspond with you whether you buy or not. Send for our free catalogue.

For 10c we will send 15 Grand Winter Blooming Bulbs, grand assortment; sure to give a great profusion of bloom.

Another great offer is the FURNAS WONDER BULB COLLECTION, which gives you $1.20 worth of bulbs for 60 cents. It will pay you to see our catalogue. Send for it.

Hopewell Nursery
SHERIDAN, INDIANA



Michigan Central
"The Niagara Falls Route"
FOUR FAST TRAINS

Daily in both directions between Chicago and Detroit and Buffalo, New York, Boston and Eastern points with finest through Sleeping, Dining and Buffet Library Cars. All day trains stop five minutes at Falls View, directly overlooking the great cataract.

Send 6 cents postage for NIAGARA FALLS ILLUSTRATED.

O. W. RUGGLES, G. P. & T. Agt., CHICAGO, ILL.

Going West This Autumn?

If so, you should travel over the

St. Joseph & Grand Island Railway

Excursion and Homeseekers' Tickets on sale to all points. Ask about them.

The St. Joseph & Grand Island Railway passes through one of the best fruit sections in the world, namely, Northwest Missouri, Northeast Kansas, Southeast Nebraska. For information concerning time card, freight rates, locations for business enterprises, etc., address

S. M. ADSIT,
General Freight and Passenger Agent,
ST. JOSEPH, MO.

Cow Peas After Wheat.

Readers of the Western Fruit-Grower will remember the plan of one of our correspondents who planted cow peas after his early potatoes were matured, and thus secured two crops on one tract in one season. Dean H. J. Waters of the Missouri Agricultural College has a plan which perhaps beats that one, and one which is followed by many growers in Missouri. It is to plant cow peas after wheat has been harvested, grow a crop of most excellent hay, and in autumn plant again to wheat. A writer in the Epitomist complained of poor results from wheat following cow peas, and concerning this Mr. Waters says:

I am very much surprised to learn of unsatisfactory results from following cow peas with wheat, and am wholly at a loss to explain it, unless the land was so rich to begin with that the wheat lodged badly after the cow peas had been grown on it, or that the mistake was made of breaking the land after the cow peas were harvested. The land is loose enough without breaking, if the cow peas were put in properly and a breaking between the pea harvest and the wheat sowing is injurious to wheat rather than beneficial, since there is not time enough to work the ground down to that firm, compact seed bed so necessary for the best wheat crop. We usually disc our cow pea stubble and then drill the wheat in. Sowing wheat on cow pea stubble is a very common practice in Missouri, and I have not heard of any unsatisfactory results, but very many satisfactory ones. At the station we have been following this rotation for a number of years on the same land without change and without manure, growing two crops a year with one breaking. A record of some of these crops will show clearly that this can be done satisfactorily. In the spring of 1899 a crop of wheat was harvested from all the fields in this experiment, the land immediately broken and sown to cow peas, with the hay cured and removed to be fed and the land again sown in wheat. In this year, however, no record was kept of the yields of each field. In 1900 the yield in wheat was as follows:

Field K—27 bushels per acre.
Field I—29.5 bushels per acre.

As soon as the wheat was threshed the land was broken and sown to cow peas, with the following yields of cured hay:

Field K—2½ tons per acre.
Field I—2 tons per acre.

Immediately after the cow peas were hauled to the barn the land was double disced and sown to wheat, with the following yields, in 1901:

Field K—48.2 bushels per acre.
Field I—34.7 bushels per acre.
Field A—37.4 bushels per acre.

This land was broken as soon as the wheat was off and sown to cow peas, but owing to the severe drouth and excessive heat of last summer the cow pea crop was practically a failure. It will be remembered that all vegetation was practically parched after July 1st. The cow peas made so little growth that wheat was sown last fall on this stubble without any further preparation of the land. The yields this spring in wheat were as follows:

Field K—45 bushels per acre.
Field I—34.97 bushels per acre.
Field A—26 bushels per acre.

This land is now in cow peas with every prospect of a large yield of hay this fall. It is to be understood that no manure has been applied to this land in recent years. The chief objection to this rotation is the lack of time in which to prepare the land for the cow peas after the wheat has been harvested. In this latitude the peas ought not to be sown later than the 15th of July, and the 1st of July is late enough for the best yields. Just after wheat harvest the farmer is usually busy with the corn, has his oats coming on and many other pieces of work that are pressing, and it is not a satisfactory time to stop work in his crops to break any considerable area and sow it to cow peas. Otherwise I am satisfied from seven years' experience, on a commercial scale, that this rotation is perfectly feasible, and will yield two good crops a year with much less labor than if they were grown on separate fields, and will improve the land at the same time. We have started another rotation which, I think, will prove much more satisfactory than the one described above, as follows: First year, wheat and clover; second year, clover and cow peas. That is, clover is sown on wheat in the spring and after the wheat is cut we usually get about half a crop of clover the same year either as pasture, hay or seed. The next spring we cut a full crop of clover in the usual way, get it off the ground by the middle of June, turn the stubble under immediately and sow the land to cow peas, and when the cow peas are removed that fall disc the land and sow it to wheat. In that way we have gotten the first year a full crop of wheat and a half crop of clover, and the second year a full crop of clover and a full crop of cow peas, thus making three and one-half crops in two years with one breaking and keeping the land covered with a growing crop all the time, and practically all the time with a leguminous chop which is adding nitrogen to the soil. This rotation has a special advantage of allowing more time in which to prepare the ground for the cow peas than the one which requires the peas to follow the wheat.

The Bark of a Tree.

In a paper before the Mississippi Valley Apple Growers' Association, Prof. E. C. Green referred in an interesting way to the bark of a tree, its functions and its relation to health and productiveness. He said:

In the bark and the layer of tissue immediately beneath it exists the life of the tree. The arterial system of the tree lies wholly within a quarter-inch of the surface. The realization of these almost self-evident truths should impress on the fruit-grower the necessity of keeping the bark in the most vigorous condition possible. It is said with truth that when a young tree becomes stunted during the first few years of its life, it is more profitable to dig up the tree and start with a young, thrifty one than to attempt to bring the little, bark-bound tree back to a vigorous condition. In a healthful apple tree the bark is usually bright and smooth the outer corky layer is thin and evenly placed and the cambium layer beneath is thick. When the growth beneath becomes sufficient the cork splits and checks, loosens readily and is thrown off by the rapidly growing trunk or limb beneath. In ordinary wheat-growing clay sod a well-started young tree will maintain this appearance and condition for a matter of six or ten years with little attention further than the usual cultivation given a corn field. During this period of normal growth, however, it is usual that several forms of vegetable and animal life attach themselves to the tree as a host and live on the sap and bark. These little plants and animals are few and inconspicuous at first, but as the years go by they become sufficiently numerous to have a marked effect on the health and appearance of the bark. If the soil about the tree has been fertilized from time to time the growth may be so vigorous as to withstand for a considerable period the attacks of insect and fungous enemies. But, provided the bark receives no special attention, sooner or later their presence is felt, and the effect is noticed in the changed appearance of the bark, the lessened vigor of the tree and the smaller production of fruit. If this comes to pass when the tree is ten years old, the owner lays it to bad weather, and if at twenty years the verdict is that the tree is old and nothing else could be expected.

The average productive life of winter apple trees, when properly cared for, is about thirty-five years, varying somewhat with the varieties. The reason, or at least one of the reasons, why this is not true for Illinois, lies in the fact that no care is given the bark of the tree; in a neglected orchard the bark appears roughened on the trunk and limbs, while the smaller branches and twigs usually present a dull, lifeless appearance. The old bark does not fall away rapidly, but clings for months, forming excellent winter quarters for various forms of insects. Fungous growths cover the limbs and branches and each tree is a menagerie of native scales, bark lice. The cambium layer is thin and incapable of carrying an amount of sap sufficient to grow a crop of fruit, even if strength enough had been carried up to make a good "set."

In remedying such an orchard, the first work should be to clean up the bark; not that this alone will bring it back to vigor and productiveness, but from the fact that such treatment will remove much of the most active causes of its poor condition. In the case of a hitherto well-cared-for orchard suddenly given over to total neglect, the last part of the trees to show the change would be the bark, and so in bringing back an orchard from neglect it is the last part to show improvement in the bark.

Cultivation and fertilization have much to do with the vigor of the bark, and are the methods best adapted to thickening a weak, dry cambium layer. If, however, the bark is in a vigorous condition in this respect and cultivation and fertilization have been the annual rule of the orchard, it is quite possible that productiveness is being sacrificed to sappy growth, and in such an instance the plan should be to stop fertilizing and by doing no cultivating later than June, check growth and cause the cambium layer to become more firm in texture. Provided nutrition and cultivation are right and the insects and diseases are the causes of the poor condition of the bark, it is a comparatively simple and inexpensive procedure to practically exterminate

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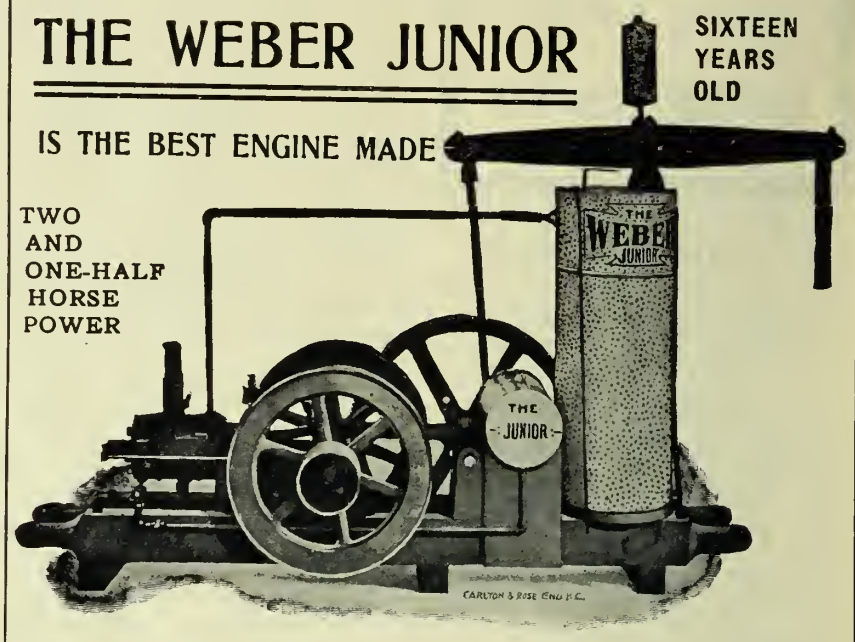

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them. For scurfy scales, oyster shell bark lice and wooly aphis, a ten per cent kerosene emulsion in June will kill ninety per cent of the young insects.

If such diseases as those of the apple rot type have attacked the twigs, causing dead and roughened bark, or the unknown disease common on Benoni, causing bunches on the limbs, a winter or early spring wash should be used. Take 15 pounds of live lime and slack with water, in which two pounds of copper sulphate have been melted, and add about 50 pounds or more of fine hard-wood ashes. The materials diluted to 50 gallons of water should be sprayed on trunks and branches, using a coarse spray. This treatment clears off old bark, destroys insect eggs and fungus spores and has a tendency to remove many of the hardy scale insects. The effect on the bark is very pronounced.

Such a wash costs little and is believed to be as effective in its work as the most costly of tree paints and patent washes. It will prove profitable to care for the bark, for dried-up, bark-bound orchards cannot produce valuable crops.

Peach Yellows.

Some months ago in the Fruit-Grower, Major Holsinger had something to say about this disease of the peach tree, and I shall most certainly disagree with him when he says there is no peach yellows in Missouri or Kansas. It appears to me that there is a disposition on the part of some people to not acknowledge the actual facts about this disease. That there is more or less of it wherever peaches have been grown for the last ten years, there is no use of denying, and the better way is to acknowledge the facts and try to keep it under control, which can be done if taken in time; otherwise, after the symptoms once develop on one or more trees, if they are not dug out and removed, it will spread very rapidly and will only end with the destruction of the orchard.

I have had quite an experience with this disease of the peach during the last ten or twelve years. There are several symptoms or indications of this disease. They all show more plainly from the middle of July to the first of September than at any other time except one sympton, and that is the forcing or opening of the fruit buds late in the fall. Some seasons it develops much more than others, and I believe there are certain atmospheric conditions that are favorable for developing it.

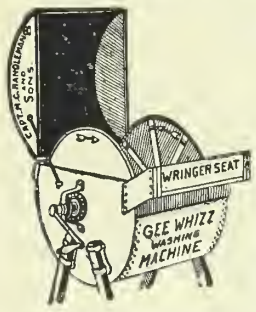
In 1901 there was but little signs of it. Neither did we have much blight among our pears. While there is no connection between these two diseases, the same conditions of soil and atmosphere that will develop one will also the other.

While there are many fruit growers who know there is such a disease of the peach, there are a less number that are able to tell when their trees are affected by it and any loss of trees that may occur from it they blame cold winters for it. In this they are partly correct, for when a tree has the yellows its vitality is so low that it will be killed when the weather is from 10 to 20 degrees below zero. This is an advantage to the peach grower who pays no attention to this disease, as it checks it just to the extent that he has trees killed and it will be one or more seasons before it shows up again. If it were not for this disease peach growing would have been overdone long ago. If it wasn't for it, all the smaller cities in our state would grow within their corporate limits all the peaches that their markets would consume; every back lot would be filled with peach trees. These situations I find are one of the best breeding places for yellows, and therefore all trees planted around dwellings are short lived. The greater part of what fruit is grown is of poor quality, beng sour and bitter and decay rapidly after ripening.

Some four or five years ago last season I had a prospect for quite a large crop of peaches, and the last of June it looked here at home as though everybody would have enough peaches to supply their own wants, and I was told that I would not get ten cents a bushel for my crop. What were the results? It was a good season for the development of yellows, and I sold at home and shipped, getting better prices than usual. The past season farmers have been good customers of ours for peaches. Why, when they ought to have them to sell, because no attention is given to this disease, and their trees are short lived. From what I have been able to learn from my own experience and others, I do not believe that any locality or state is immune from it.

L. V. DIX.

Jefferson City, Mo.



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Questions and Answers

J. A. C., Putnamville, Ind.—I have an orchard of 800 trees on worn-out land. The trees are doing well, bearing a heavy crop this year, but they cannot keep it up unless they are helped. I am too far from where I can get barnyard manure, having six miles to haul it. How can I feed my trees with fertilizers, what kind shall I use, how apply, etc.? I sold my Wealthy apples at $1 bushel on track, Grimes Golden at 80 cents bushel, Ben Davis $1.25 barrel.

Answer by Dr. Whitten: The leguminous plants, such as crimson clover, vetches, cow peas, etc., are cheap fertilizers for orchard lands, if grown and plowed under. At this distance it is impossible to say which of these will succeed best about Putnamville. If early varieties of cow peas will do well there they should be the best crop to raise. They should be planted about the first of June, the land having been well cultivated from early spring up to that time. The peas may be cut for hay, pastured to hogs on the ground or allowed to lie and all plowed under in spring. If cow peas do not succeed and crimson clover does, it should be sown late in the summer, cut for hay in May and the stubble immediately plowed under and clean cultivation given. In case neither of these can be grown, vetches ought to succeed for a fall and winter cover crop, to be plowed under in spring. If none of these leguminous crops will thrive in the neighborhood, rye can be sown in late summer, allowed to lie over winter for a cover crop and plowed under in spring. A green crop of this kind grown every two or three years and clean culture between times ought to keep the orchard in good shape for bearing regular crops. If the orchard has not been plowed for some years, care should be taken not to plow too deep or it will cut off too many roots and injure the trees. The plowing should for this reason be shallow enough so as not to cut too many roots.

E. C. A., Lone Jack, Mo.—I have a friend who uses a whitewash of one peck of lime and one pound of copperas to prevent work of borers. Is copperas injurious or beneficial to trees? Is it likely to prevent work of borers?

This whitewash may be a good wash for the trees, but we hardly think it can be relied upon absolutely to keep borers away. It may help to that end; but the best experience of Western growers has been that, in addition to any such washes, the trees should be examined, and frequently it will be necessary to go after the worms with a sharp knife or wire. We believe there are better washes used than the one mentioned above, particularly those which include soft soap as one of the ingredients.

D. W. H., Chattanooga, Tenn.—I have 30 acres of clover sod that I would like to plant to strawberries this fall. Have any of the readers of the Fruit-Grower had any experience planting clover sod? It occurred to me that the white grubs might ruin the plants.

Answer by Dr. Whitten: Clover sod, if well plowed and well tilled, should be an ideal place for strawberries. If well plowed and well tilled, the grubs should not injure the plants.

G. W. S., Fordyyce, Ark.—How early can grafting be done, and how should the grafts be treated? Will it be safe to plant them out before cold weather is over, as soon as grafting is done, or would it be best to cover the grafts with sand until they are calloused and cold weather is past? Should the string remain on the grafts or be taken off? Give best method of planting out grafts; it is a very difficult matter to plow a furrow deep enough for some grafts, and driving holes is slow and hard work.

Answer by Dr. Whitten: It will be best to do the grafting during February; keep the grafts well packed in moist sand or fresh sawdust until they have calloused in spring, then plant them out so only one bud of the scion is above ground. If the strings are merely wound around them they should be left to rot off in the soil. If the soil cannot be plowed deep enough to open a furrow so as to plant the grafts deep enough, they may be planted slanting to the south so as not to go straight into the ground.

W. T., Missouri—(1) To whom should I send pears for name? (2) Has the Napoleon cherry ever been grown in southwest Missouri? (3) What are the merits of the different pear seedlings, French, Japan, etc.? (4) On what stock would you work for dwarf cherry? (5) Can any one inform me as to merits of Walker apple? It has been listed as the Evans by one nursery, and is an Arkansas seedling. (6) What are the comparative merits of Bilycu's Late and Picquet's Late peaches, both freestones, and very late to ripen? (7) Is there any difference, and to what extent, between Winesap. Improved Winesap and Stayman's Winesap? (8) Name best cow pea for orchard. I have tried Whip-poor-will, also Clay Crowder. I seek one that will mature quicker and yield more fodder and seed, if possible. (9) Name best red raspberry, best gooseberry. What about the Industry? (10) Best red table grape. (11) Best work on insects with colored illustrations to aid one to recognizez friend from foe. (12) Best work on the principles of fruit-growing. (13) Best work (specially) on peaches. (14) Who knows anything about the Wiard plow?

Answer by Dr. Whitten: (1) Pears should be sent for naming to Hon. L. A. Goodman, Westport, Mo., who is secretary of the State Horticultural Society, or to the Division of Pomology, Washington, D. C. (2) The Napoleon cherry has not been planted largely enough in southwest Missouri, so far as I know, to demonstrate its commercial importance. The Early Richmond is the commercial cherry for that district. (3) Either the French or Japanese pear stocks are all right for this state. (4) The Mahaleb is a good cherry stock. (7) Stayman's Winesap is said by some reliable pomologists to be superior in size and productiveness to the old Winesap. (8) The Red Ripper and the Black are good cow peas for your part of Missouri. If an earlier one is desired the New Era is good for seeds, but it does not make so much hay as the others. (9) Turner raspberry, Downing gooseberry. The Industry is not a commercial success, but it is a fine large one for an amateur garden where size alone is wanted. (10) The best red table grape depends upon the purpose for which it is to be grown and the season for which it is wanted. Named in order of ripening the following are good: Brighton, Woodruff Red, Rochester and Goethe. Wyoming is hardier and better bearer, but of poor quality. (11) Weeds' "Insects and Insecticides" and Saunders' "Insects of the Farm and Orchard" are good, though plates are not colored. (12) Bailey's Principles of Fruit Growing. (12) Fulton on the Peach is about the only book that treats fully on this subject. The best literature on peaches is to be found in the horticultural journals, state horticultural society reports and Experiment Station bulletins.

R. C. D., Arkansas City, Kan.—To what do you seed a young pear orchard just coming into bearing, when you wish to stop cultivating? How treat same? Why should a pear orchard not be cultivated after it begins to bear?

Answer by Dr. Whitten: It is best to seed a young pear orchard to clover, as a rule, when it is old enough to come into bearing, and leave it in sod. If given clean culture the trees are more liable to blight.

J. M. P., Cassville, Wis.—Will apple trees do well planted on bottom lands which do not overflow?

Answer by Dr. Whitten: If the bottom land is second or high bottom and the soil is porous or loose, apple trees should do well in it. If it is very low or of hard clay or gumbo, the trees will not do well.

A. J. M., Mystic, Iowa.—How do bananas grow? I have heard many conflicting stories from men who claim to have seen them growing. Have even seen them represented as growing on trees and some as single plants, with one fruit bunch, and some as growing on vines. Which is correct?

Answer by Dr. Whitten: The banana plant grows much like the corn plant, except that it is much thicker, the stalks of some of the large sorts reaching a diameter of nearly a foot and a height of twenty-five feet. The fruit cluster grows from the top and turns down just as you see it in the shops.

F. A. S., St. Louis, Mo.—Have you a good recipe for whitewash for exterior work?

Answer by Dr. Whitten: The whitewashes mentioned in Bailey's Rule Book are good. One of the best, slake one-half bushel of lime in boiling water, keep it covered; strain and add brine made by dissolving one peck of salt in warm water, and three pounds of rice flour, then boil to a paste; add one-half pound of whiting and one pound of glue dissolved in warm water. Mix and let stand for a few days before using.

W. D., Van Buren Co., Iowa.—I have a lot of peach trees, budded this fall. What winter protection will they need? Also have a lot of pear and apple grafts planted last spring, what protection will they need?

Answer: In your locality your stock should need no winter protection.

E. H. R., Hutton Valley, Mo.—Please advise me in regard to mulching strawberry plants with cane pumace, which was pressed in September and allowed to lie in heap until November. Would it be advisable to use this pumace? It is said by some that new cane pumace will sour the ground and make it unfit for plant growth.

Answer: We have never seen the pumace so used, but there should be no danger in using it, after having been pressed and lain for over two months exposed to the weather. After the ground is frozen we should think it perfectly safe to use the pumace as a mudch. Who has tried it?

J. C. M., Oak Grove, Mo.—Should apples be put in the cellar as soon as possible after picking, or should they be piled in orchard and allowed to remain until late before being placed in cellar?

Answer: The best advice is to store apples as soon as possible after picking. If they are to be placed in cellar, a good plan is to open the windows at night, when the air is cool, and close in the morning, as during the day the air is warmer outdoors than in the cellar. We believe the "sweating" process in the orchard is generally condemned.

W. G. R., Piney, Ark.—Do you know of any way to keep borers off of peach and apple trees? Will driving a nail in the tap root of an apple tree when it is planted keep the borers away?

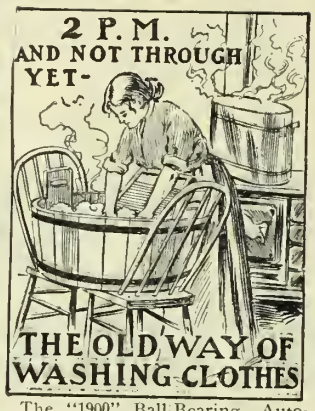
Answer: "Eternal vigilance" is necessary to keep borers from trees, and no absolute preventive has been found. Some washes help to keep trees free from borers, but none can be relied on absolutely, so far as tested in this section. Mounding the earth around the trees early in the summer will cause the female beetle to lay her eggs higher on the tree; scrape away these mounds in autumn and the eggs or larvae can be easily destroyed. This does not keep the borers away; it simply makes it easier to destroy them. No, nails in the roots of trees will not keep borers away.

S. C. G., Bismarck, Mo.—Will Fruit-Grower readers report their experience with this treatment of orchards: To sow orchard in clover or other grass and then cultivate three or four feet around the tree, the orchard being composed of apple, pear and peach trees one year

GREATEST HOUSEHOLD NECESSITY FREE

The "1900" Ball-Bearing family Washing Machine is absolutely indispensable in every home because it makes washday a pleasant, instead of a dreaded duty

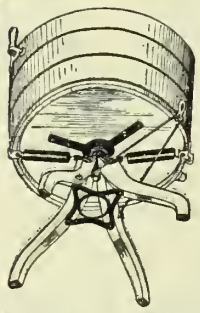
No Rubbing, No Stooping, No Boiling and No Wearing Out of Clothes, Can Be Operated While Sitting On a Chair. Saves Time, Labor and Expense.



SENT ABSOLUTELY **FREE** WITHOUT ADVANCE PAYMENT OR DEPOSIT OF ANY KIND, FREIGHT PAID, ON 30 DAYS' TRIAL. MAY BE RETURNED FREE OF EXPENSE IF NOT SATISFACTORY.

The "1900" Washer will wash collars and cuffs, laces, cambrics, and the most delicate materials perfectly clean and positively without tearing them or wearing out a single thread. It will wash blankets, bed spreads and heaviest clothes just as easily and thoroughly.

The "1900" Ball-Bearing Automatic Washing Machine is the simplest, easiest running machine for washing clothes ever invented. It is a thoroughly practical labor-saving machine for family use. It is constructed on scientific principles. It revolves on ball-bearings, which render the rotary movement as easy as the wheels of a high-grade bicycle. The "1900" Washer will wash any garment without boiling, scrubbing and without wear or tear. There is absolutely no need of using any chemicals. Soap and water are the only necessary things to do perfect work.


As it Appears Looking Under the Bottom of the Tub.

The washing is done while the operator sits by the side of the tub, revolving it by the handle.

There is no further need for stooping, rubbing by hand or boiling of clothes. The "1900" Washer will wash large quantities of clothes (no matter how much they are soiled) in from 6 to 10 minutes.

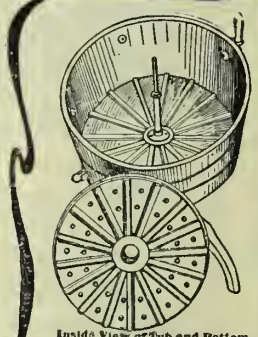
It is not a cumbrous affair, for, unlike so many so-called washing machines, it has no complicated machinery, no wheels, paddles, rockers, cranks, etc.; in fact, it is so simple a child can operate it.

Other machines move the clothes through the water, but this machine forces the water through the clothes, and rubs them at the same time.

The principle upon which this machine operates is directly opposite to that of any other.

HOW IT OPERATES.

The operator turns it to the right and to the left about half way around each time. To make it work as nearly automatic as possible it is provided with two oil-tempered coil springs at the bottom of the tub, which engage at each extreme point and help to reverse the motion. The machine moves uninterruptedly until it reaches the point where it should be reversed; then it comes in contact with the force of these springs and, like the action of a rubber ball, bounds back, meeting the spring force again at the other extremity.


Inside View of Tub and Bottom of Agitator or Washboard.

We assert in the most positive terms that any one who gives the "1900" Washer a fair trial, will never use the washboard any more, or if any other washer is in use, it will be given up at once. Hundreds of pleased customers will bear us out in this statement. Our offer of sending the washer on free trial, freight paid both ways, is a thoroughly honest and sincere one and proves beyond question our faith in its merits. No one ever returned a "1900" Washer that needed one and gave it a fair trial, and no one would part with it for many times its cost, if they could not get another.

ABSOLUTE PROOF FROM USERS OF THE "1900" WASHER

East Plymouth, Ohio. Feb. 2, 1902.
P. O. Ashtabula, O.
We have been using the "1900" Washer since May 15, 1900. Have done over 1,200 washings and I think it is good for as many more. We do family work from Ashtabula. We have used 8 different machines, and the "1900" beats them all for good and fast work and durability.
GEO. N. BURNET.

Hart, Mich., August 25, 1902.
Please find enclosed money order to pay for my washer in full. We are well pleased with the washer. A great many people have looked at it. My mother, 83 years old, and I, who am a cripple in a wheeled chair, have done our washing in it for the last three weeks. MRS. ALICE ROUSE.

Kansas City, Mo., May 14, 1902.
I have given your washer a fair trial. It is the best washer I ever saw. It has washed our heavy blankets with ease. I washed them last spring and rubbed more than an hour and yet they had to go through again, but the "1900" Washer cleaned them thoroughly clean. We do our washing very quick and have no tired and worn-out feeling as of old. I wish every lady had a washer. MRS. L. J. BANNER, 4302 Troost Ave.

$1,000 will be paid to anyone who can prove that any of the following Letters are not Genuine:

Peoria, Ill., Sept. 2, 1902.
I have given the "Washer" a good trial, both with my washing and bedding. It is the best machine I have ever used for blankets: in fact, I think it is the best all around washer I ever heard of. I would not do without mine.
MRS. LILLIAN SELLERS.

Washington, D. C., Sept. 8, 1902.
You will find enclosed payment for the "1900" Washer. It fully comes up to our expectations and is all that you have claimed for it. We will take pleasure in recommending it to all who wish to avail themselves of one of the greatest labor-saving devices of modern times for domestic purposes. WM. F. SALTER.

"1900" WASHER CO., 69D STATE ST., BINGHAMTON, N.Y.

REMEMBER—You take absolutely no risk, incur no expense or obligation whatever. The washer is sent by us on 30 days' trial, freight prepaid going and coming, and positively without any advance or deposit of any kind.

For Catalogue and Full Particulars of this Liberal and Absolutely Genuine Offer, Address "1901 Washer Co., 69 D State St., Binghamton, N. Y.

WE PAY THE FREIGHT

Our prices are right and show just what the goods cost you at your R. R. station or express O. Send at once for new descriptive price list.

New Haven Nurseries, New Haven, Mo.

old. My trees are on a slope which washes badly.

Answer: This plan has been followed by many growers whose orchards are on hillsides, with good success. The strips of clover act as checks to keep soil from washing, and even the slight cultivation given is very helpful to trees. Will some of our readers tell how they manage their orchards on hillsides which wash badly? Let us have your plans.

F. M .S., Mt. Moriah, Mo.—I have an orchard which does not bear. Will some of the Fruit-Grower readers, after learning of the conditions, tell me what is the trouble? The orchard is located on rich bottom soil, but not low land; native timber on the north and west, with orchard sloping to south; soil is nice, sandy loam; native trees which surround the orchard are black and white oak, hickory, etc. The orchard has always been thrifty, trees are healthy in every way. Ever since they were five years old they have hung full of bloom, and in a few rare cases a dozen apples would ripen, but no more. Thees have had good cultivation until last two or three years. I am going to do what I can to get a crop next year. Will your readers tell me what they think is the cause of non-fruitfulness?

Who can answer this gentleman? May be the trees have made too great wood growth, and, although bloom buds are formed, they are not strong enough to set fruit. Try girdling a few of the trees next June, taking a strip of bark two inches wide from the trunk of the tree, girdling the entire trunk. This may help the bloom buds to become stronger.

J. W. Woody, Kleburg, Texas, wants to buy "some genuine Wilson blackberry plants." Those who can furnish same should write the gentleman at address given.

O. M., Lawrence, Kan.—What shall I do for mites in chicken house?

See some matter on this subject in poultry department this issue.

M. T., Paris, Ark.—Can you tell me about Stayman Winesap apple? Will it come into bearing earlier than old Winesap? Some one said the tree would blight.

Answer by Prof. Howard: The Stayman Winesap is an improvement over the old Winesap variety, the fruit being higher colored and better quality. It do not know that it would come into bearing earlier than the old Winesap, but the trees are hardy, and I never knew of their being inclined to blight.

R. B., Coats, Kan.—Many of my apple trees are dying, and yet the orchard is only seven years old. The bark is killed from just above the ground to a height of twenty inches; some trees have bark dead all around, while most of the trees show the injury only on the sout hside. What caused this condition?

Answer by Prof. Howard: Apparently the trees are suffering from the effects of what is generally known as "sun-scald," which is common among trees that have been headed too high. The flat-headed borer, which works above ground, often assists in causing the trees to die on one side, but the borers may work on any side of the trees, while sun-scald appears only on the south or southwest sides. The remedy is to head the trees low, so that the branches will shade the trunk, or use wooden wrappers when the trees are planted and keep them on until they rot off.

C. K., Cowgill, Mo.—(1) Should one-year-old apple grafts be topped back in spring? If so, at what height? (2) Can nectarines be grown successfully in North Missouri? (3) Is the Robinson plum self-fertile? (4) How can one tell, from outward appearance, when an apple is ripe enough to pick to keep, and not too ripe?

Answer by Prof. Howard: One-year-old apples from the grafts are often cut back to the ground in spring if they have made a poor growth. This insures a fine one-year-old for the following season, or a fancy two-year-old if left still another year. If the first year's growth has been good, there is no especial reason why they should be cut back. (2) Nectarines are not quite so hardy in either wood or bud as the peach. This will determine the matter as to whether they are likely to grow satisfactorily. The nectarine is not considered to be of any commercial importance anywhere in the state. (3) Our records of tests covering several seasons show that the Robinson plum is usually self-fertile, though not always. (4) There is no sign that can be given to tell what is asked. It is a thing to be learned by experience.

The missing glot of queries which were lost in the mails have appeared. Here they are, with answers by Major Hollinger:

U. G. T., Lawrence, Kan.—My trees are five years old, and have made an extra big growth, and are on a rich sandy loam, and are within ten feet of river bed, so you see I have sub-irrigation. We have had so much irrigation during the high water that it washed out sixty trees for me which were in a draw, and also have taken nearly all of our other crops. My varieties are Ben Davis, Jonathan, Missouri Pippin, Winesap and a few of other kinds. (1) The southwest part of my orchard is very badly blighted. What is the cause of it, and what effect does it have on the trees—mostly Missouri Pippin and a few Jonathan. (2) Why are the insects so much worse here in the bottom than they are on the hills? Apples don't seem to hang on near as long in the bottom. (3) What effect will a poor quality of sand have on the trees, that is, from six to eighteen inches deep, that was settled on the ground during the high water? I have about three acres that are in bad shape. I have peach trees that are five years old and have never had but a few peaches on them; have cultivated them well, but have never done much pruning. My pears have also blighted, and have never borne much either; they are the Keiffer variety. I laid it to too much moisture.

Answer by Major Holsinger: Here we are again! Blight! What would we not give to know all about this terrible disease? But we don't. Some trees are more susceptible to it than others. Why? I don't know. In one block of nursery trees it originated in Missouri Pippin. As the wind was from the west, I could trace it clear through the block. It seemed to me the disease was carried by the wind. "Nonsense," says one. I have had a whole lot of theories upset during the past thirty years by facts. I recite this fact. (2) I don't know. Is it true, or is it because you are on the bottom and have your own ills to contend with, and do not see or know the fight your hill neighbor is making? I am interested in hill and bottom, and I am convinced that both are worse—only one worse than the other. Take your choice. (3) The deposit of sand, be it rich or poor, must be disastrous to your trees. No fault of the sand, but that the roots of the trees will be smothered. (4) Peaches that have not borne in five years are not likely to do you any good. Either your location is not suited to them or you were unfortunate in selection of varieties. Pruning was no fault of their failing to bear. More harm is done by pruning than the lack of it. Pears—blight again. You think too much moisture the cause. Guess again! We surely have had as much moisture as you, and have thousands of Keiffer, and comparatively no blight on them.

H. W. S., Lathrop, Mo.—I am anxious to learn how to raise and cultivate grape vines, and in fact all small fruits. Just put out small vineyard in rows 8 feet by 6, and am told they do as well at distance of 4x4 or 5x5, cultivate both ways. Give us the best in the shop.

Answer by Major Holsinger: To propagate grapes, use only the last year's growth. Cut to three eyes. Cut at the big end just below the bud. Use for this purpose a sharp pair of pruning shears. Remember, cut close to the bud. I find they respond more freely if thus treated. Now tie in bunches of 50 or 100, as most convenient, always keeping the butts (lower ends) together and as even as possible. Now dig a trench of say a foot in depth, selecting a warm location. In this place the cuttings, tops down; cover the whole over carefully about three inches. This will cause the plants to "callous," and soon as ground is in good fix for transplanting, draw a line and dibble the plants in, firming the ground about the plants. Cultivate well, keeping plants clean. Vineyards should not be crowded; 8x8 is better than closer. Trellis is the better way. If trellised it is impossible to cultivate both ways. Now that you have your vineyard planted, set your trellis in the row 6x6, so you have room to cultivate. If you are careful in setting your posts you can, if you desire, drive a wagon between, should you at any time desire to fertilize them or wish to drive through your vineyard.

T. J. F., Fandon, Ill.—I would like to hear through your valuable paper from Major Holsinger how pollinated peach seed are crossed from budded sorts.

Answer by Major Holsinger: By pollination we understand it as simply fertilization of varieties. Thus if two varieties are grown in close proximity, contact is sure to follow, the flowers of one fertilizing the other. It is, however, not certain that there will be a variation in the development of the seed of either, only a possibility. Make it still stronger and say a probability. Should the bloom of the one fertilize the other, a new variety is sure to follow, showing the parentage of one, possibly of both. Through the evolution of the peach we have a very different fruit than that of our ancestors. How accomplished? Accident in part. A variety known as an "accidental seedling" possessing merit is carefully noted by the intelligent horticulturist, and preserved to the world by grafting, budding or other means. The fact is conceded that the peach will pretty nearly duplicate itself when grown in isolated locations. Thus, in one of my experiments with forty-nine seedling Salway, there was only one that showed other blood. That I consider as the only one worthy of propagation or of a name. And that was because of its time of ripening, coming between Elberta and Salway. Another variation in these forty-nine seedlings was in the fact that nine are cling, yet in leaf, tree and shape of fruit they are Salway. These seeds were taken from a large block of Salway and had undoubtedly been self-fertilized. Ah! but hold! How about the nine clings? I know a case where two seeds from a smock pit planted carefully, one was a free, one a cling. How did that happen? I don't know. Do you?

D. C. T., Trenton, Tenn.—(1) In this latitude (1) would you advise fall or spring planting of apple trees? I want to put out about twenty acres of Ben Davis and Red Junes. (2) Is it injurious to apple trees to remove fruit while green? (3) Apple trees are blighting more here than I ever noticed before. Don't think that any orchard is free from blight. Can you suggest a cause or advise a remedy?

Answer by Major Holsinger: I recommend spring planting as preferable to fall; in this, if nothing lese, that it will save your trees for a year at least from the ravages of rabbits. As to other advantages, I know of none. (2) No, decidedly no! Apple blight is a hard nut to crack. It comes and goes. Thirty years ago I knew all about blight. I know nothing, absolutely nothing, now. And what is more, I don't know any one who does.

J. G. McK., Shelburn, Ind.—Will Major Holsinger please tell me how he raises 1,300 bushels of Houghton gooseberries per acre, as is claimed in wholesale price lists of Stark Bros.? Did he not mean gallons instead of bushels? I have 100 Houghton bushes, two-year set, and sold fifty gallons, and did not see how they could have been much fuller. I have them 7x4 feet; is this not close enough? Will the major please give distance apart for setting, manner of cultivation, pruning and at what age they will reach their climax in bearing; also how and when to propagate them? I think of trying it. Also what am I to do with my ten Yellow Transparent apple trees, two-year set, that have as high as seven apples to tree and are covered with what I term blight. Have cut them one-half away and they still continue to blight.

Answer by Major Holsinger: I don't do it; I have not said it; it can't be done. I did say once that from a piece of ground one-quarter acre measured, that we had grown at the rate of 700 bushels; and on another occasion that we picked seventeen crates from sixteen bushes of Houghton gooseberries. The gooseberries were in a single row and were not crowded. I have not seen the catalogue, and did not know I was thus quoted. A typographical error, possibly. I think 6x4 feet about the right distance. As to cultivation, use any cultivator that will stir the soil. If set regularly they can be cultivated both ways for the first year. This simplifies the matter of cultivation. They are, or should be, at their best in three years. Propagation—The gooseberry can be grown from cuttings. They, however, do not respond like the grape or currant. I usually tie the plants or use those plants that touch the ground and form roots. Any plant with however small the root, will grow right off. Early in the spring I usually hunt for these plants, which are planted in nursery now and in a year are strong plants equal to two-year-old plants. On blight, see my answer to D. C. T., current issue.

A. K. R., Toppenish, Wash.—My Red June and Gravenstein apples, as soon as they begin to ripen, seem to rot and become mushy under the skin, and is not of a bitter or disagreeable taste. The apples also seem to ripen very irregularly. The trees apparently are in a state of vigorous condition.

Answer by Major Holsinger: You people on the coast are a law unto yourselves. You are so far removed from us, your climate, soil and surroundinggs so unlike that one who has not studied the conditions can but make a guess, never having seen anything of the kind here. I thought on first reading that I had it in bitter rot, but on second reading you say "is not of a bitter or disagreeable taste." As to the irregularity in ripening of fruit, that often occurs, but need not alarm or worry. Your trees being vigorous, I incline to think they will overcome this condition, and that the disease is climatic rather than of soil. It is certainly a new one on me.

J. M., Sandusky, Ohio.—Can you suggest a way to rid land of wire worms, preparatory to planting peach seed?

Answer by Major Holsinger: Know of none.

W. H. B., Socorro, N. M.—Can you or any of your readers tell me how to preserve cider, how to keep it sweet and pure and palatable till used up, or for a few months at least?

Answer by Major Holsinger: Keeping cider sweet is a very difficult matter. Fermentation of cider can be retarded by keeping it cold. Acidity is, of course, hastened by heat. There are a number of drugs that will retard fermentation, the most harmless of which is formaldehyde, generally used by those engaged in its preparation for use. About two ounces to the barrel. Must be applied before fermentation. But anything which prevents fermentation is dangerous to the users of cider

W. G. A., Superior, Neb.—Would like to know what is wrong with my peach trees; they look like trees do in fall after they have been frosted; the leaves all drop off and have a yellow cast. This is all I can see wrong, as trees made very good growth up to middle of July; only part of orchard is affected. Trees were southern stock, set out spring of 1901; were clean cultivated all summer, watered twice, and made very large growth.

Answer by Major Holsinger: From your very meager description of your peach trees I am inclined to think borers are getting in their work. I can conjecture no other or better reason. Look to the roots of your trees for the cause.

TWO NEW BOOKS FOR HOLIDAYS.

The Macmillan Company, 66 Fifth avenue, New York, has just issued two new books for young folks, which are in every way suitable as gift books for the holidays.

"A Little Captive Lad," by Beulah Marie Dix, is the title of one of them. This is a story of the time of Cromwell and King Charles. A boy of nine years, left an orphan by the death of his father, a Cavalier, is taken in charge by a happy-go-lucky soldier of fortune, Captain Jack Careless, who looks after the child until the latter's half brother, a Roundhead, takes him back to England. The story tells of the trials the brother had in teaching the child, with his rebellious ways, to love him, and to understand the relationship which exists between them. At first the child prefers the old life and the old love of Jack Careless, but through time learns to appreciate the fact that "blood is thicker than water." All through the book glimpses are given of the troublous times which existed then, and the story is of fascinating interest to the young and old as well. The book is printed in the excellent style for which the Macmillan Company is noted, beautifully bound and illustrated, and will be sent, postpaid, on receipt of price, $1.50.

The other book is "Children of the Frost," by Jack London, 261 pages, illustrated; price $1.50. This book is a collection of short stories of the Eskimos, told by themselves. These stories are interested and along a line in literature which has been somewhat neglected.

Both of these books are in keeping with the publications which the publishers usually send out, and are models of the bookmaker's art.

THE YOUTH'S COMPANION CALENDAR FREE.

The publishers of the Youth's Companion are sending free to new subscribers to the paper for 1903 a handsome Calendar, lithographed in twelve colors, with a border embossed in gold. The exquisite home scene which forms the principal feature of the Calendar is suitable for framing. The Calendar is sold to non-subscribers for fifty cents, but to new subscribers for 1903 it is sent free, with all the issues of The Companion for the remaining weeks of 1902, the paper then being sent for a full year, to January 1904.

THE YOUTH'S COMPANION,
144 Berkeley Street. Boston, Mass.

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The demand for farm lands is very great at the present time, for there is a feeling that this form of investment will be profitable. W. M. Ostrander, 1922 North American Bldg., Philadelphia, reports having made a number of good sales lately. Mr. Ostrander sells lands and residences all over the country. He can sell property anywhere, and has a plan by which he makes sales by mail. Those of our readers who want to buy or sell any form of real estate will do well to write Mr. Ostrander at address given. Now is a good time to list your property, while the demand is good.

Cheap Lands Desirable Locations Pleasant Homes

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THE SOUTHERNFIELD and other illustrated publications giving information of advantage to farmers, manufacturers and visitors, are forwarded upon request.

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The fruit crop harvested in the season of 1902 in the Ozark country has attracted widespread attention in all parts of the United States and even abroad. This district is well worth investigating—more especially considering that low rates are in effect, on the first and third Tuesdays of each month, via the

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Only one business day en route Kansas City to New York and Boston via WABASH train No. 8; leave Kansas City 6:15 p. m. daily, arrive New York 7:45 a. m. and Boston 10:10 a. m. second morning.

Ask your ticket agent to route you via Wabash R. R., or for rates and descriptive matter call at Wabash corner, 1601 Farnam street, or address,

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WE WANT A GOOD AGENT AT EVERY POSTOFFICE.

Otwell's TREE PAINT
for 7 years has grown in favor. Millions of trees saved from rabbits in winter and borers in summer. It costs nothing for circulars and terms to agents. The best thing in the world for fruit trees, and you will say so too.
BEFORE AND AFTER
Write W. B. OTWELL, Patentee, CARLINVILLE, ILL.

Poultry Department

Owls and Poultry.

One nuisance is the owl, who is on hand after dark as the hawk comes by daylight. Put a chicken in a cage and tie a dead one to a stake nearby. Then set two or three steel traps near the stake and cover loosely with leaves. The owl makes a dive for the caged chicken; faling in this he goes for the dead one near the stake, which he cannot get loose. Then as he drops down the friendly trap takes him in its lovely embrace, and you can finish his course in the morning.

Many people do not know that crows are sometimes more destructive to young stock than hawks. It is true as a general thing crows will not carry off chickens, but when their depredations begin one crow seems to tell all the others, until all the crows in the neighborhood make chicken hunting their chief business. They become very bold, often coming near dwellings to pounce down on a hen and chicks.

A good plan is to cover some yards with two-inch wire netting. This is the most effective way we know of to rid a place of these pests, especially hawks.

Chickens in November.

The chickens hatched out in May and June this year are now from five to six months old and are at least three-fourths grown; if they have had a fair chance during the past season some of them are good ones, which should be kept for breeding stock the coming winter.

Wherever any considerable number of birds have been grown the past summer the breeder has a full stock on hand this month, and these must be judiciously disposed of. Some perhaps can be sold for breeding purposes, reserving what the breeder wishes for his own yards, and marketing the balance of the crop.

It always pays best to dress your poultry before sending to market, and this should be done in a neat manner.

Questions and Answers.

Q.—Males have been with my hens two weeks; is that long enough for fertility? A.—The usual time necessary to fertilize a batch of eggs is not an invariable one. The whole batch may be impregnated in a few days or not perhaps for ten days. If the males have been with the hens for two weeks go ahead and use the eggs for hatching. Experience warrants this advice.

Q.—I find a lot of red mites in my hen house. Will they do any harm to the birds? A.—Yes. Red mites are capable of causing as much trouble as lice and require more severe treatment. An ointment composed of sulphur and kerosene one third, is effective if applied thoroughly to the body of the fowl. The woodwork of the house should be thoroughly whitewashed.

Q.—Can you give me any cure for fowls that are crop-bound? A.—Some have given as a cure baking powder, about a teaspoonful dissolved in water and given to the bird. It's a good plan to follow this up in a few hours with one-half teaspoonful of castor oil. The writer generally opens the crop, taking out the food and then carefully sew up the incision.

Practical Pointers.

Spade or dig up part of your yards, and thus leave the chicks to hunt for worms and bugs.

Alternate male birds in your pens when you wish eggs for hatching and note the increased fertility.

In no instance should an incubator be opened after the chicks or ducks begin to pip until they are all about out.

When you have purchased an incubator, follow the directions; do not think you can improve upon the instructions of the manufacturer.

To make industrial poultry keeping profitable, artificial methods must be used. Brooder systems and incubators are no longer experiments, when properly constructed and rightly operated. Natural methods can no more compete with artificial than ancient machinery can compete with that of the present day. One advantage we have in the incubator, they are always "ready to set," enabling the owner to get out chicks and ducks at any season of the year.

Clover hay prevents soft-shelled eggs.

What you feed is of less importance than how you feed.

Be careful to wash your eggs before sending them to market.

Corn and meat are the principal articles for a fattening diet.

Be careful in feeding potatoes; they are starchy and fattening.

Let no broody hen set on newly laid eggs, be it for ever so short a period.

Broad breasts, strong legs and deep bodies are points in breeding for meat production.

Drafts and dampness are the cause of most of the colds and the dread precursor of roup.

If you have nothing but dung-hills on the farm, kill off your males and grade up with thoroughbreds.

The May laid egg is almost a sure hatcher, and the May chick a hustler. The natural conditions favor it.

Pullet eggs hatch fairly well, but the chicks do not have the stamina that those have hatched from hen eggs.

In caring for and feeding the breeding stock, the nearer we can approximate nature's ways the better the results.

Energy brings experience, experience brings knowledge, and without both you can never successfully breed poultry.

A hen will generally lay when in good condition, whether she is fat or lean, but a fat hen is seldom in good condition.

Judicious mating is very essential in the production of any live stock—even cull stock will occasionally produce a fairly good specimen.

Make it a rule to take no eggs to market that you are not sure that are fresh or that you are doubtful about the flavor being good.

There are a number of conditions which determine the health and vigor of the breeding stock and the percentage of eggs that will hatch.

Fowls, like folks, need variety. In winter food that heats the blood is entirely proper, but in summer it should be avoided as much as possble.

Those who are raising pullets for layers should carefully distinguish between food that is necessary to fit which will develop the pullets.

Ducks as a rule are very timid, but domestic in their habits, and seldom wander far away from their sleeping quarters, if given their liberty.

Experience has shown that fresh cut green bone is the most economical as well as the most satisfactory form in which animal food can be fed to poultry.

We are often asked the question, how do you get so many eggs from your stock? We can answer this in one sentence: We take good care of them.

In dressing ducks, dipping the hand or fingers into a dish of water causes the feathers to stick to the hand and enables one to remove the feathers more rapidly and with less trouble.

In going among your breeding ducks, care should be exercised not to frighten them, and always avoid disturbing them at night, as continuous agitation is not conducive to a high egg production.

We have been fully convinced long ago that in order to produce the highest standard of excellence in a bird it must grow continuously from the shell to maturity. Any set-backs will be injurious. They must be well fed, but not overfed.

There are nine breeds of ducks recognized by the American Standard of Perfection, several of which hold high places in popular favor. They are rated as follows: Pekin, Rouen, Indian Runner, Aylesbery, Cayuga, East Indian, Call, Muscovy, Crested. The Pekin is unquestionably the favorite.

So many people enter the poultry business with the belief that all they have to do is to shovel out feed for the stock and engage a man to gather eggs, and yet these same men if told they did not have sense enough to set a hen they would become insulted. Yet when tried by the straight edge of success they find more truth than poetry in the charge.

W. P. LAIRD.

What Two Girls Can Do.

I haven't much time to write, and am far from an experienced writer, but it does not relieve me to have an occasional opportunity to suggest things

Commercial Orchard
MISSING LINK APPLE CO.
NURSERYMEN CLAYTON, ILL

Successful commercial orcharding depends upon the following factors:

First—Trees must be true to name.

Second—Trees must be grown on Nature's plans.

Third—Trees must be properly dug and packed, so as not to lose their vitality.

Fourth—Varieties must be adapted to soil and climate before congenial environments exist.

Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.

Sixth—There must be a mutual consideration of each other's interests between nurseryman and planter.

Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees. You are especially invited to call and see our stock and examine our bearing trees.

Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.

Agents wanted in every locality. Call on or write us for prices.

Yours for mutual pleasant and profitable business,

Platt's Commercial College
Ballinger Bldg., 7th and Edmond
ST. JOSEPH, MO.

We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

SEND TO
HOLSINGER BROS.
for prices on
RASPBERRY STRAWBERRY **PLANTS**
CUMBERLAND RASPBERRIES
brought 50 cents crate more than any other. We have plenty of them. Also Kansas, Gregg and Hopkins. Twenty leading varieties of Strawberries, and other small fruits.
HOLSINGER BROS.
ROSEDALE, KANSAS.

SANDUSKY & Co.
GENERAL COMMISSION
Wholesale Fruits and Produce
116 S. Third Street, and 115 Market Square, ST. JOSEPH, MO.
BERRIES A SPECIALTY
Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.
Established 1884.

Apple Seedlings
Iowa grown; grown from Vermont natural seed on new clean land, free from aphis, root gall, or any other disease. Grape vines the largest and best stock in the country. Apple Cherry, Plum, Pear and Peach trees, Currants, Gooseberries, Raspberries, Blackberries. Send for Price List.
SILAS WILSON, Atlantic, Ia.

AGENTS WANTED Liberal terms. Plattsburg Nursery, Plattsburg, Mo.

which I think might help a few, at least.

The fancy side of poultry is out of my sphere, and I would rather listen than make the noise, but there are profitable practical things in connection with full-blooded poultry that seem to be overooked.

During the hatching season fanciers, big and little, can and do dispose of their surplus eggs for hatching purposes by letting people know what they have to sell, but the real hatching season lasts only a few months.

Seeing every day the novel success two girls are making in my town, buying and shipping eggs, suggests a topic to write about, or rather I will tell you what these girls are doing; (I have their permission) for the reason that I encouraged the undertaking, they have a sort of fatherly respect for me.

These girls are too ambitious and too sensible to kill time at dad's expense. One day they called my attention to a groceryman packing eggs; we took in the sight without his detecting our curiosity. Old, weather beaten cases, besmeared card-board fillers, eggs of all color, sizes and shapes, dirty eggs, clean eggs and eggs with feathers sticking to them. They came to my office next day and they unloaded their plan for my criticisms. Their plan was this:

They would rent a room and go to buying eggs, paying cash, etc., and hoped that the farmers would appreciate the cash enough to induce them to bring their eggs to them instead of to the stores; and it worked. The farmers took to the idea in no time, and the grocery stores are now compelled to get eggs for their town customers from these two girls. Not an egg goes to the stores from farmers. Just another proof that people like to help those who try to help themselves.

We find no dirty, filthy cases or fillers around this egg establishment. Every egg is washed and wiped dry. They are assorted into four varieties, the white shelled ones, the deep brown and light brown and a general cull grade which catches the runts of the other three grades. The runt grade catches the doubtful in candling; they have a market for the culls at market price, because they are, on account of being clean, preferable to a mixed lot of dirty eggs. They have a fancy market for the perfect eggs in handsome cartoons, holding one dozen each, and a market for them in clean, new cases. The three perfect lots are stamped with a rubber stamp.

They buy all the eggs that come to this town and two other towns. Yesterday they called my attention to a case of eggs that a farmer brought in, they were all of one color and needed but little washing. "That's the kind everybody should have," says they, "we can easily pay that man a cent more than we can for eggs that we have to scrub and sort." Today they showed me a letter from a groceryman at a famous winter resort. It stated that he wanted two cases each day instead o of one and he voluntarily raised the price to encourage the girls to make an extra effort. Nice, clean eggs in handsome little cartoons did it.

Mr. Editor, it seems to me this dirty egg question is costing the poultry raisers too much money; they can't afford it. The real market for eggs is the towns and cities; every city and every town of any importance has people who will have nothing short of the best, and in many instances a few cents more per dozen only makes them that much more attractive. We must figure fads in this country and work them; it's a fad with some people to buy nice things because the big gun got the same brand, etc.

I don't want to use up all your space, but I want to mention that in due time the girls will buy, fatten and dress poultry and force a fancy market for their way of fixing up dressed poultry. The plan is not fully matured, but I am confident they will make it go.

Yes, we Yankees are pretty smart, can do big things and make money like the dickens; then along comes somebody that don't know much about business anyhow and makes more money than we do, just saving what we have wasted; that's about the way it is. M. M. JOHNSON.

Clay Center, Neb.

INCREASED ITS CAPITAL STOCK.

At a stockholders' meeting of the Weber Gas and Gasoline Engine Co., of Kansas City, the stock of the corporation was increased from $150,000 to $200,000. This company was originally founded in Kansas City by George J. Weber in 1884, and has been engaged in the manufacture of gas and gasoline engines continuously since that time, and has recently completed a new factory at Sheffield.

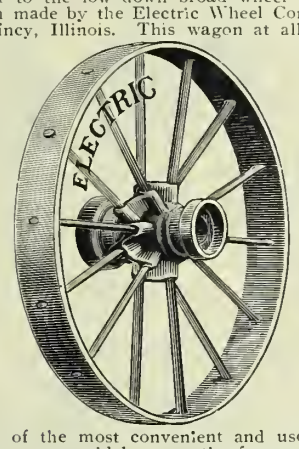
The present officers of the concern are: George J. Weber, president; George T. Moore, vice president; R. G. Weber, secretary and treasurer; H. C. Weber, superintendent.

The product of this company is now shipped all over the world, recent foreign shipments going to Ecuador, Peru and Australia. The company's business in the neighboring republic of Mexico is quite extensive.

HAULING CORN FODDER.

With the biggest and perhaps the heaviest crop of fodder ever harvested, and with the fields cut up as they are by the unusual fall of rains, the farmers are puzzled as to just how to take care of their fodder.

In this emergency we want to call your attention to the low down broad wheel Handy Wagon made by the Electric Wheel Company, of Quincy, Illinois. This wagon at all times



is one of the most convenient and useful articles a man could have on the farm. Is particularly useful in getting in the fodder and other late fall work. Mosa of our readers who have used this wagon are profuse in their praises of it. Some say they would not be without a handy wagon for three times what it cost.

Those of our readers who do not feel that they wish to make the necessary outlay to buy one of these wagons at the present time may have a low down, broad tired wagon by simply buying a set of the Electric Wheels, such as are shown in the cut. They are made in a great variety of heights and are made to fit any wagon. The simple removing of the old high wheels and substituting a set of the Electric's makes a handy, convenient, low down wagon at a very small item of cost.

All of the goods turned out by the Electric Wheel Company are made of the best material, and they are the kind of people we have talked so much about in the past. That is to say, they are wise enough to know that the way their success has been achieved is by making every buyer a loyal, enthusiastic exponent of their goods.

We suggest that you get one of their free catalogues, and see if their proposition does not impress you as being a particularly good one at this time of the year. Write for the catalogue today.

A GREAT HOUSEHOLD INVENTION.

Four times within the short space of two years it has been necessary for the 1900 Washer Co., of Binghamton, N. Y., to enlarge their factory in order to supply the ever increasing demand for this popular family labor saving machine. Surely this indicates not only a successful and progressive business, but one based upon honest principles.

This company advertises in a great many papers and is sending washers by the thousands into every state in the Union, always with the greatest satisfaction to the purchasers. We have carried their advertisement in these columns for some time and have never yet heard a single word of complaint against them. A great many of our readers have bought the machines and they are not only thoroughly satisfied, but speak in the most enthusiastic terms about them. This certainly speaks well for their business methods, but in further evidence of the confidence they have in their goods they offer to send a washing machine to any reader of this paper, free of all cost, both going and coming, for a thirty days' trial. If you try the machine for thirty days and it is not exactly what it is represented to be, you have the privilege of sending it back to them without its costing you one penny. If you like it, you can then forward them a deposit and pay the balance in accordance with their easy installment plan. Surely nothing could be fairer to the purchaser than a proposition of this sort, and knowing the "1900" Washer people as well as we do, it strikes us as an offer which every reader should take advantage of, if they have not already done so. Be careful to address the 1900 Washer Co., 69 D., State Street, Binghamton, N. Y., and say that you saw their advertisement in Western Fruit-Grower, St. Joseph, Mo. You will find them honest and straightforward in every way and will never regret dealing with them.

H. LEONARD & SONS.

Doubtless many of our readers have adopted the custom of buying direct from large mail order institutions for various and good reasons, particularly because the mail order houses issue magnificent catalogues which may be perused carefully and the greatest thought and consideration given before the purchase is made.

Your local merchant buys his goods in a way commonly called "at wholesale." It has always been supposed that he had the advantage of the consumer, but things have changed and we are pleased to present an illustration of a large establishment in Grand Rapids, Michigan, who sell to our readers, if you will mention the Western Fruit-Grower, at absolutely wholesale prices.

The firm of H. Leonard & Sons, to whom we refer, have been in business a half century, but have hitherto confined their efforts to the wholesale trade. Now they are selling direct to the consumer, and if you will write them at once they will mail you a copy of their Holiday Catalogue containing a selection of household goods suitable for holiday purposes.

Your dealer buys his furniture in Grand Rapids because it is the largest furniture manufacturing city in the world. You have the opportunity in dealing with this firm of buying at the same prices and in the same way. It is safe to say that you would save at least 25 per cent, and in many cases more on anything that you bought from H. Leonard & Sons.

TREE PRESERVATION.

There have been many things devised to save trees from rabbits and borers, but none that is as effective and easily handled as Otwell's Tree Paint, elsewhere advertised in our columns. It will keep your young trees growing and prevent them being gnawed by rabbits or have the life taken out of them by insects and other creeping and crawling things.

We would suggest that you write these people, as we note that they send their reading matter free, and certainly it is of enough importance to every farmer to make him want further particulars.

All trees are in need of something of this kind even if they do go on growing and bearing. It takes time for insects and animals to do their fatal work, but they will surely do it if they are not stopped.

THE GLORY OF HEALTH.

What is more pleasing to the eye than an athletic, clear skinned, deep chested man, ready to toil or play, with the free, easy grace of perfect health? The kind of man that goes singing about his work, because he feels that way.

WATKINS' VEGETABLE ANODYNE LINIMENT

will not make a lazy man muscular, but it will keep the body in such perfect condition that the food you eat, the work you do, will all help to build up a big, strong body. It is the cold in the chest, followed by a troublesome cough that breaks down so many strong bodies. A dose of Watkins' Liniment will stop it all before the harm has been done. **No running for Doctor,** no paying big doctor bills. Use internally or externally for **Colds, Coughs, Colic, Diarrhoea, Dysentery, Cholera Morbus, Indigestion, Cuts, Burns, Bruises,** for **man or beast.**

Watkins' Liniment is good for so many diseases because of the large number of valuable ingredients, each of which does its own work, and does not interfere with the others. Let our agent leave a bottle at the house. If there is no agent in your neighborhood, write to us, and we will see that you are supplied.

A Valuable Gift.

We have a beautiful **Cook Book** and **Home Doctor** that we send free to all. It is full of valuable recipes and good wholesome advice. Everyone is surprised that we can afford to send out such a complete and beautiful book free. Write to-day. Send your name on a postal card.

THE J. R. WATKINS MEDICAL CO.,
36 Liberty Street, Winona, Minn., U. S. A.

Agents Wanted Stock. We pay To sell Nursery 40 per cent to good competent men. HART PIONEER NURSERIES, Ft. Scott, Kansas.

HANDSOME WATCH FREE

A Solid Gold Ladies' or Gents' watch costs from **$25 to $50. Don't throw your money away.** If you want a **watch** that will equal for time any **Solid Gold Watch** made, send us your name & address at once & agree to sell **only 8** boxes of our famous Vegetable Pills at 25 cts. a box. It's the greatest remedy on earth for Constipation, Indigestion & all stomach disorders & they sell like hot cakes. Don't miss the chance of your life. Send us your order & we will send the 8 boxes by mail. When sold you send us the money & we will send you the **WATCH** with

A GUARANTEE FOR 20 YEARS

the same day money is received. There is no humbuggery about this. We are giving away these watches to quickly introduce our Remedy—& all we ask is that when you receive the watch you will show it to your friends. Hundreds have received watches from us & are more than delighted with them. This is a glorious opportunity to get a fine **watch** without paying a cent for it & you should write at once. Address

AMERICAN MEDICINE CO., Dept. 160 B, 47 Warren St., New York City.

STARK BRO'S NURSERIES & ORCHARDS Co Louisiana, Missouri.

Capital Stock $1,000,000.00—FULLY PAID UP.

The enormous increase of our business during the last three years has compelled us to enlarge Offices, Packing-houses, etc., and increase Nursery Plants at Louisiana and Starkdale, Mo., Huntsville, Ala., Dansville and Portland, N. Y.; our orchard interests have also assumed huge proportions, all of which necessitated a proportional increase of Capital Stock.

Another New Packing House, 132x240 Feet, Now in Course of Erection.

APPLE: The largest and FINEST stock of both 1-yr. and 2-yr. trees ever grown in the U. S. We are headquarters for all the leading market sorts and **SOLE OWNERS** of **BLACK BEN DAVIS** (Registered Trade-Mark No. 38,556) and **CHAMPION** (Registered Trade-Mark No. 32,184), the **TWO GREATEST MONEY-MAKERS** known. [illegible] stock than [illegible] but whe[illegible] **orts, in-**

PEAR, Standard: Lea

cluding Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others **—extra fine trees.**

PLUM: A Full stock of all BEST varieties, including Gold, Climax, Sultan, Shiro, America.

CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, Early Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce; orders should be placed at once.

APRICOT: Sunrise and **Superb,** the only two varieties worth planting east of the Rocky Mountains. Also American Seedling, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading Sorts for home use and market—**London Market** Currant, Houghton Gooseberry and **Cumberland** Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

ELBERTA PEACH: Planters of **ELBERTA** should place orders at once as the call for this **greatest of all market peaches** is unprecedented. All the leading varieties of Peach are in great demand and only our immense stock of several million trees enables us to still offer Elberta and other leading market sorts.

☞ Owing to the great scarcity, planters will find it to their advantage to purchase their Elberta of **thoroughly responsible** nurseries only. To our personal knowledge assorted peaches are being purchased by many irresponsible parties with which **to fill Elberta orders.**

BUDDED LILACS: Superb sorts, both Single and Double; colors are pure white, light and dark blue, light and dark purple, purplish red, rosy red, satiny rose, etc. The beautiful old fashioned lilac is far surpassed in beauty and size of truss by these improved sorts. Every flower garden, every dooryard, should have them. **Perfectly hardy.**

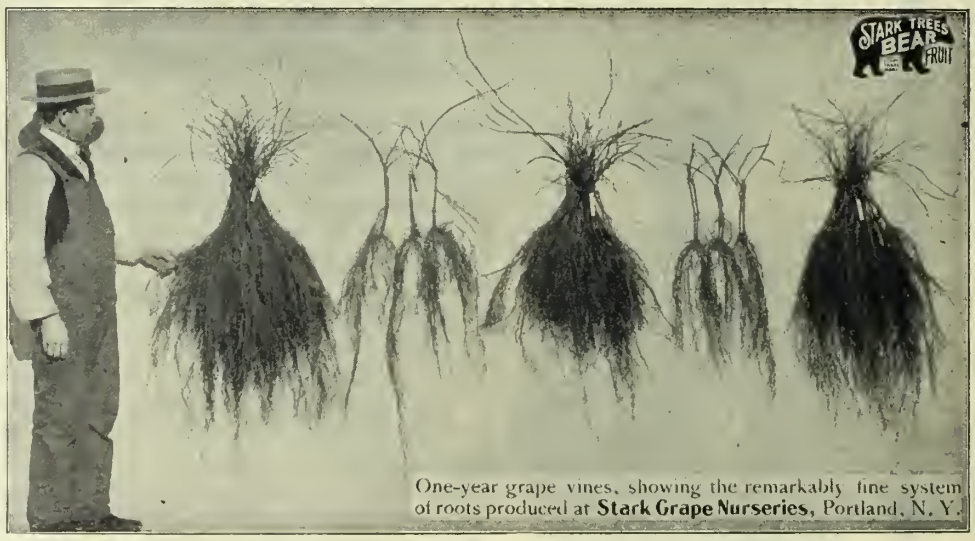
ROOT GRAFTS of Apple of all leading sorts, and Kieffer and Garber Pear. Whole-root grafts in stock; piece-root **made to order.** Special low prices quoted on large lots of Root Grafts, Seedlings and Stocks.

SEEDLINGS, STOCKS and CUTTINGS: Apple (5 grades or sizes), Imported Pear, Kieffer Pear, Mahaleb Cherry, Anjers Quince and Mariana Plum Cuttings.

SHADE AND ORNAMENTAL TREES, Shrubs, Roses, etc. **Bechtel's Dbl.-flowered Wild Crab Apple** is unsurpassed for **hedges.** Of **iron clad** hardiness.

GRAPE---An Immense Stock of Superb Quality

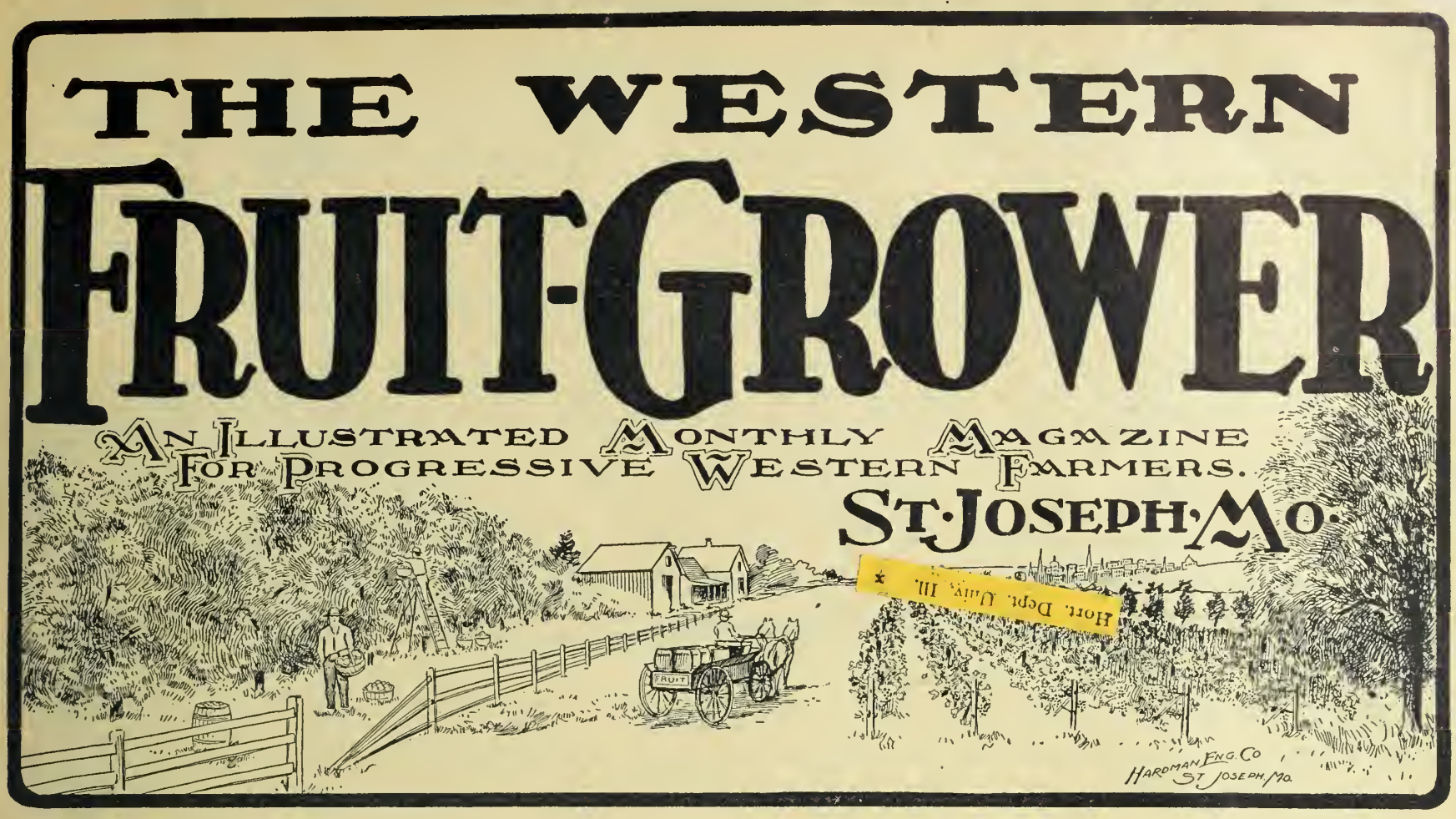
For many years it has been the policy of Stark Nurseries to supply its customers with the best of everything that can be grown. Recognizing the indisputable fact that the **best** vines in the country are grown in the state of N. Y., we secured acreage at Portland, Chautauqua Co., in the heart of the famous Fredonia district and established our Grape Nursery. The result was highly satisfactory to us and will be more so to our customers who plant the vines, for finer, thriftier, healthier stock was never grown; and as vines can be grown in New York cheaper than elsewhere, owing to perfect stand and ease of cultivation, we are able to reduce prices materially. **We are ready to meet all competition** in both quality of stock and **low prices.** Large orders for vines of nearly all varieties grown by us can be shipped from either Portland, N. Y., or Louisiana, Mo.; small assorted orders will be filled from Louisiana, but with the fine N. Y. grown vines—we having discontinued growing grape elsewhere. Leading varieties are Moore's Early, Diamond, Niagara, Concord, Brighton, Worden, Delaware, etc., all sorts of **established** value in all markets. For the home vineyard we grow the sorts of finest quality, covering the entire season from early to late. **Currants** and **Gooseberries** grow to perfection at Portland; we have nearly a million Houghton Gooseberry, London Market Currant, and other best sorts.



One-year grape vines, showing the remarkably fine system of roots produced at **Stark Grape Nurseries**, Portland, N. Y.

We PAY FREIGHT on Orders of $12 and Over, Box and Pack Free, Guarantee Safe Arrival, GUARANTEE SATISFACTION. Write for Stark Fruit Book, Price List, etc.—free upon request.

Volume Twelve DECEMBER, 1902 Number Six



Hort. Dept. Univ. Ill.

First Meeting of the American Apple Growers' Congress

The first meeting of the American Apple Growers' Congress, held at St. Louis November 18 and 19, was a success in every way, and the new organization bids fair to become an important factor in the production of apples throughout the country. Delegates were present from many of the principal apple-producing states, and the new organization will have the support and encouragement of all of them.

Officers were elected as follows: President, H. M. Dunlap, Illinois; vice president, W. R. Wilkinson, Missouri; secretary, T. C. Wilson, Missouri; treasurer, Wesley Greene, Iowa; statistician, Prof. J. T. Stinson, Missouri. Additional vice presidents were chosen as follows, one from each state represented: Illinois, C. H. Williamson; Indiana, W. C. Reed; Ohio, William Miller; Arkansas, George Woolsey; Iowa, A. T. Erwin; Alabama. George R. Kyle; Missouri, W. T. Flournoy; Kansas, William H. Barnes; Tennessee, Louis Erb. The executive committee consists of the four first named officers and G. T. Lincoln of Arkansas, A. V. Schermerhorn of Illinois, H. C. Price of Iowa and G. T. Tippin of Missouri.

The new association is to be congratulated upon the corps of officers with which it starts. President Dunlap is one of the best known apple growers in the United States. He has been for a number of years president of the Illinois State Horticultural Society, a member of the state senate of Illinois, president of the commission from that state for the World's Fair at St. Louis in 1904, was horticultural commmissioner from the United States to the Paris exposition, and altogether is a most excellent man for the place. Associated with him are men who stand high as horticulturists, and the new organization will certainly make a most favorable impression through its corps of officers.

The next annual congress will be held in St. Louis in November of 1903, and the executive committee will meet during the summer to canvass the apple crop situation, so as to give the best advice obtainable to those growers who have fruit to sell.

The first session was called to order by H. C. Cupp of Illinois, chairman of the temporary executive committee, who introduced F. W. Taylor, superintendent of agriculture and acting superintendent of horticulture of the Louisiana Purchase Exposition, who, on behalf of Mayor Wells, welcomed the members of the congress to St. Louis. Mr. Taylor said he would improve the opportunity to talk to the growers present on the importance of the exposition which is being planned for 1904. He said that plans for the Agricultural and Horticultural buildings are about completed and show that the space allotted to these two departments is about four times that provided at Buffalo and twice as great as was provided at the World's Fair at Chicago. Under one roof, in one square room, there will be over four acres of space provided for pomological exhibits alone. The Agricultural building will have over twenty acres of floor space, the largest building ever erected for exhibits of this kind.

EXECUTIVE COMMITTEE OF THE AMERICAN APPLE GROWERS' CONGRESS.
Reading from left to right, the names are: A. V. Schermerhorn, Kinmundy, Ill.; Wesley Greene, Des Moines, Iowa, treasuser; Wm. H. Barnes, Topeka, Kan.; A. T. Erwin, Ames, Iowa; H. C. Price, Ames, Iowa; Henry M. Dunlap, Savoy, Ill., president; W. R. Wilkinson, St. Louis, Mo., vice-president; C. H. Williiamson, Quincy, Ill.; T. C. Wilson, Hannibal, Mo., secretary.

"This will give an idea of the provisions which are being made for the fruit growers and farmers," said Mr. Taylor. "In connection with the fruit display, I would call your attention to one fact, and that is that in the Horticultural building the one important thing will be the fruit display. There will be a separate apartment for the flower display, and in the one large room I told you about, the four-acre room. there will be nothing but fruit and whatever flowers and plants are placed therein to decorate the room. These plants and flowers will be put in after the fruit exhibit has been installed, so that the fruit will be the important thing and everything else secondary to it.

"Now, these great buildings will be but warehouses which we will provide for the exhibits, which much be furnished by you. I have assured the officials of the exposition that the fruit-growers will fill the space allotted to them. I count on your active, earnest support. To make the showing of apples, for instance, which is expected, it will be necessary to have about a trainload of fruit in cold storage at a year from this date, so that when the exposition opens the display can be in keeping with the provisions which have been made to receive it. I hope the growers here present will begin now to plan to produce choice fruit next season and that they will place great quantities in storage to await the opening of the exposition. Any information which I can furnish is at your disposal, either now or at any time, and I shall be pleased to help in any way that I can to make the fruit display in 1904 the greatest by far the world has ever seen."

After Chairman Cupp had responded, Secretary Wilson read the minutes of the various preliminary meetings, which were adopted. The committee appointed to draft a constitution and by-laws reported a constitution for adoption, which, after some discussion, was adopted as read. Important provisions are as follows: Meetings will be held annually, at such times and places as may be chosen; any person interested in the production of the apple or its product is eligible to membership; dues for first year are $3, after first year $2 per year; life membership can be secured on payment of $20, or, after one has paid membership for two or more years. life membership can be secured by payment of $15 additional.

After the constitution was adopted and the officers had been elected, President Dunlap appointed committees on fruit exhibits as follows: For best exhibits by one grower, Messrs. Lincoln of Arkansas, Green of Ohio and Erwin of Iowa; for individual plates of apples, two committees, one consisting of Messrs. Goodman of Missouri, Stanton of Illinois and Richmond of Missouri; the other consisting of Messrs. Watrous of Iowa, Barnes of Kansas and Erb of Tennessee. These committees had a hard task before them, for the display of fruit was very fine.

The first number on the program was a paper on "Soils," by Prof. Hopkins, of Illinois, who was not present, and whose place was taken by Prof. Clothier of Missouri, who made a splendid talk on this interesting and important subject. Prof. Clothier told of the general composition of soils, sand, clay and vegetable matter, and said that the difference in soils is not caused so much by the difference in the chemical construction of the soils as in the physical nature.

"I fear we do not appreciate the truth of this," said Prof. Clothier, "and that too often we think that a soil is worn out and will not produce crops because its fertility has been exhausted, when, as a matter of fact, the trouble is that the vegetable matter has been taken from the soil and the physical nature of the soil is such that plant food is not available. Last year, during the extreme drouth, I had occasion to examine two different soils, one of which had a great deal of vegetable matter or humus and the other being very deficient. The first soil contained 16½ per cent of water, while the soil with very little humus had only 9 per cent of water. To show just what this difference meant at a time of great drouth I need only to say that it amounted to about two inches of rainfall—and think what a difference this would have made in our crops last season. I would make a plea, then, for plenty of vegetable matter, or humus, in the soil, that the moisture may be retained, the soil kept in a proper physical condition, and the plant food made available.

"Now, in regard to soils for apples, I would say apple trees are not as hard on soils as many have supposed, if we will keep the soil in proper physical condition. A bulletin issued by Cornell University shows that in a single year a crop of apples will remove, for the fruit from a single acre, 13 pounds of nitrogen, 1 pound of phosphoric acid and 19 pounds of potash. The leaves on the trees which produce this crop of fruit will require 19 pounds of nitrogen, 5.2 pounds of phosphoric acid and 18.4 pounds of potash. The tree growth will require 9.4 pounds of nitrogen, 3.6 pounds of phosphoric acid and 8.8 pounds of potash. This looks to be a severe strain on the soil, yet I believe that, all things considered, apples are about half as hard on soil as corn, assuming that all of each crop is permanently removed from the soil, whereas in each case there is more or less of the leaves, stalks, etc.,

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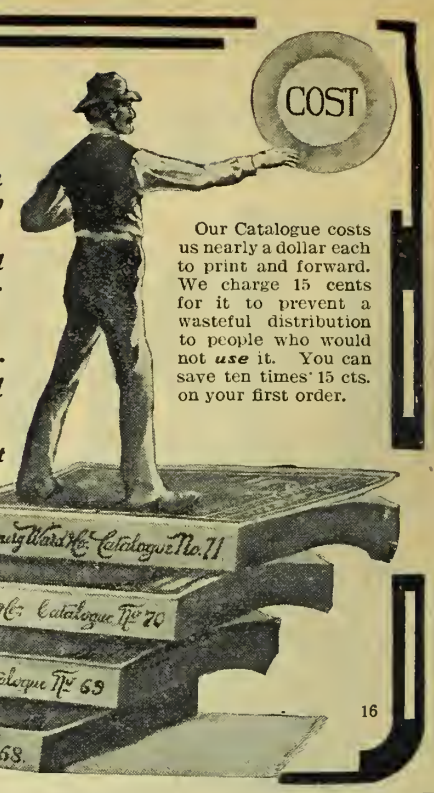

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returned to the soil. I believe that when apple trees fail to bear it is not because the fertility of the soil has been exhausted, but is because the plant food is not available. Our soils will produce crops of apples for a long time if we will make conditions so that the trees can appropriate the food in the soil."

G. T. Tippin of Missouri was the first one to discuss the paper of Prof. Clothier, and said the matter of soil is a very important one in orcharding. Real heavy black soils, soils with hardpan clay subsoils, those with a bed of gravel underneath, and those soils which are mixed with stone, he said, are usually not to be recommended for apple culture. The best soils are those which maintain an even temperature during the fluctuations of the season, and he would certainly avoid any soil which is so warm as to cause the fruit to mature too early in the season.

Mr. Stanton of Illinois followed Mr. Tippin, and said he agreed with the latter as to the importance of considering the soils on which apple trees are to be planted. Yet it has been only a few years since growers began to consider this matter at all. "Any land which will grow fifty bushels of corn per acre, and which is not too flat, will do for apple orchards," we were told. And, so far as trees alone are concerned, Mr. Stanton said he believes this is true. But for a fruit crop there are other things to be considered. Those soils which are too rich in nitrogen cause the trees to grow too fast, trees are too long coming into bearing, and when the first crop is borne the trees are soft and the weight of the fruit breaks the limbs badly. Mr. Stanton said he believed that it was safe to say that, as a general thing, the texture of the wood of the tree is in keeping with the texture of the soil in which it grew; if the soil is close and compact, the texture of the wood of the tree will be similar; if the soil is loose and porous, the wood will be also. Of course, extremes are to be avoided, but the close-grained tree is best suited to bearing and maturing a crop of fruit.

W. R. Wilkinson of Missouri said he would select good ridge land, with air and surface drainage, inclining to the north and west preferably. He said he would prefer about six inches of good top soil and a red or yellow clay subsoil. Mr. Wilkinson said his first planting is now about fifteen years old, and the trees began to die just as they began to bear. He was at first told this was due to woolly aphis and then was told it was due to root rot, caused by decaying vegetable matter in the soil. He now believes it is due to the character of the trees the nursery furnished him. Mr. Wilkinson paid tribute to the cow pea as a soil renovator, stating that it was helpful for the nitrogen which was gathered from the air and from the humus which plowing under the stubble or the tops would add to the soil. For northern locations he would recomment the New Era, farther south he would use Red Ripper. Both these varieties of cow peas are good.

"I believe that $1 worth of cow pea seeds, where they are properly planted and cared for, will add more fertility to the soil than a ton of commercial fertilizer, costing from $20 to $24," said Mr. Wilkinson. "Fertilizers contain about 5 per cent of nitrogen, the most expensive of the ingredients which are added to the soil. This will amount to 100 pounds to the ton. Now, a crop of cow peas will add this much nitrogen, at far less cost, and besides this we have the humus from the vines and leaves, which will add a great deal of vegetable matter to the soil. It has been said that soil rich in humus, or decayed vegetable matter, will absorb three times its weight of water. If this be true, we should see that our soils have plenty of humus, and no crop can add this to the soil better than cow peas."

A delegate from Illinois said he believed orchardists have been paying too much attention to top soil and too little to the subsoil. This speaker said he began to haul apples to St. Louis market in 1844. He has been engaged in fruit growing for sixty years, starting when he was 16 years old. Now, after all this experience, he is more hopeful and feels more encouraged than ever before. He believes we should have good foundations for our orchards, and therefore the subsoil is most important. He said that soil which is seemingly exhausted can be greatly improved by trans-plowing and bringing the subsoil to the surface, thoroughly mixed with the top soil.

Professor Blair of Illinois said he believed if a careful investigation were made it would be found that apples really take more plant food from the soil than some other crops do—in fact, that apples rob the soil more than most any other crop. If fifteen bushels of wheat per acre are grown on soil for twenty years plant food to the value of $128.23 will have been removed. Two hundred bushels of apples per year for the same time will remove fertility from the soil to the value of $207.45, a difference of $79 against the apples.

"And yet," continued Prof. Blair, "notwithstanding this terrible exhaustion of the soil, we not only expect our apple trees to bear profitable crops for all this time, but in a great many cases we expect the soil to yield another crop as well, as a corn crop, a hay crop or perhaps a crop of small grains. If we are to add this fertility to the soil it will take over sixteen tons of the very best commercial fertilizer per acre. I believe that in Illinois and Missouri the tendency is to have too little plant food in the soil, yet if we are to grow profitable crops of apples we must realize that we must feed our trees more liberally.

Mr. H. L. Messick of Quincy, Ill., also made a strong plea for the feeding of apple trees.

Prof. Clothier said he believed the figures he had given in regard to the fertility removed by apple crops and other crops were approximately correct, and that the figures quoted by Professor Blair would hardly stand the test.

"In the figures given by Prof. Blair it is supposed that one man will grow 200 bushels of apples per year for twenty years, and grow only fifteen bushels of wheat per acre. And yet I believe that a man who is good enough farmer to get 200 bushels of apples from every acre of his orchard for twenty years will get more than fifteen bushels of wheat per acre during the same time. He is a good farmer, and will likely get twenty-five bushels of wheat; and at this rate the soil impoverishment will take place much quicker than if apples at the rate of 200 bushels per acre had been grown. The fault is in estimating the size of the two crops," said Professor Clothier, "for the man who gets 200 bushels of apples per acre every year is too good a farmer to be satisfied with only fifteen bushels of wheat."

The question was asked, "Is it better to turn cow peas under when vines are green or wait until they have dried?"

Prof. Clothier said the vines will decompose more rapidly if turned under while green, but not as much fertility will be added to the soil. For best results from fertility, vines should be mature.

Prof. French said that in turning cow peas under the tops, or vines, add only humus to the soil; that the nitrogen is all gathered by the roots. But Prof. Clothier said not so; for every ton of cow pea hay contains 57½ pounds of nitrogen in the tops alone.

President H. M. Dunlap of Illinois was down for the next paper on "First Five Years of an Apple Orchard." The selection of varieties, he said, is most important. In selecting varieties one must look at the cash returns; study the situation where the orchard is to be planted, and get hardy, productive trees, varieties which are good growersr and which hold their fruit well. The fuit of the apple alone must not be considered, for we must have good trees before there will be any fruit. The fruit is too often dearly paid for, on account of a tree which is a poor grower, not hardy and subject to all manner of diseases. The tree of the Ben Davis accounts for much of the popularity of this variety. Everybody takes a fling at the fruit occasionally, but old Ben usually takes care of himself for he has the qualities which commend the tree to all planters. We may have too great a proportion of Ben Davis trees planted, and we must

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supply the demand for better sorts also, but Ben Davis is not to be discarded. As to varieties which should be planted, it depends on the market which you wish to supply. As a rule, it is better to have different varieties ripening at all seasons.

Mr. Dunlap said that on hill lands he would prefer a north slope. Distance to plant is also important. From his own experience he would say not less than 30 by 30 feet; to plant closer is to crowd the trees. Some persons prefer planting closer, part of the trees to be cut out later, but in most cases the planter fails to cut the superfluous trees out at the right time.

"I have heard this plan advocated by many persons," said Mr. Dunlap, "but I would feel perfectly safe in offering a reward for a photograph of a man whoh has had the nerve to cut out apple trees as soon as they should come out. Farmers just simply won't do it. They try to get 'just one more crop,' and they always leave the work until too late."

As to pruning, Mr. Dunlap would select trees with a central leader and have branches three to six inches apart on main trunk; if he could not get just the kind of trees he wanted, would take a pair of pruning shears and get his trees as near like his ideal as possible. He prefers a low or medium headed tree for Illinois. Cultivation of the young orchard is most important. Do not plant small grains in the orchard; the man who does so makes a serious mistake. Taking the crop of grain off during the hot season has a very bad effect on the trees. The best crop that can be grown in a young apple orchard is corn, which should be so planted that it can be cultivated both ways. Leaving space on each side of the tree rows is a good plan, and this allows the cultivation of the soil even after the corn crop has been laid by. Cow peas are also excellent crops to be grown in the orchard.

Mr. Dunlap said north of the fortieth parallel he would prefer spring planting. always; south of that he would plant in either fall or spring, but if in the spring would plant early. If trees are planted in the fall he would use the wooden veneer tree wrappers, which will not only protect the tree trunk from rabbits, but will prevent too rapid evaporation from the trunk. He would spray the small trees against scab and insects. Keep the borers away from the young trees, and the first five years will start your young orchard off in fine shape. Mr. Dunlap closed with the statement that the outlook for the intelligent orchardist is very bright; the market for good apples is wide and is constantly being extended.

Secretary L. A. Goodman of Missouri followed and gave a good talk on this subject. He said the matter of subsoil for the orchard is very important; in fact, it is the one important thing. Surface soil is of course needed to grow the crops which are to be planted among the young trees, but aside from this purpose the top soil of the orchard is really unimportant. As to varieties, Mr. Goodman said one should not depend on what other persons plant particularly, but should plant the varieties which do well with him, no matter what other people plant. As to trees, he would prefer a good two-year-old tree, grown in pyramidal form, with a center shoot. Take care not to plant too deep nor too shallow. In planting, one ought not to lose over one tree in a thousand, and the reason the loss is greater is due to either the carelessness of the planter or of the nurseryman in the way the tree is handled from the time it is dug until it is planted. Get the trees in the earth as soon as possible after digging; head the trees about eighteen inches, and place wooden veneer wrappers about the trees, placing the lower end about one inch in the soil. Leave the wrappers on; has left them on as long as five years. The wrappers will repay you the first year alone by the better growth made, protecting against rabbits, etc. They do not make the bark too tender, where they are left on the trees, as many have supposed, and some of the best trees in Missouri have never had the wrappers removed. They protect the tree against sunscald, against rabbits, and also prevent barking the trunk of the tree in cultivating the orchard. Distance at which trees should be planted depends on the soil; in southern Missouri 25 feet apart each way is wide enough, while in northern Missouri 30 feet apart will be none too far.

"Now, as to what crops should be grown in the orchard," said Mr. Goodman, "the very best crop, aside from apples, which can be grown is tobacco; but of course not all of us can grow tobacco. Next best is sweet potatoes, and the next best crop is corn. The latter is the one which is apt to be most suitable. Plant in check rows each way, so that cultivation can be given both ways. The next season, if I could not plant corn, would plant cow peas, leaving eight feet for the tree row—four feet on each side of the row. Use this eight-foot space in giving the trees good cultivation. Don't, whatever you do, neglect your orchard for the first three years. Get the young trees to growing, and keep them growing. Never fear the trees will get too great a growth the first three years after they are planted.

"I never prune the trees berfore the third year, and a branch must be very much in the way before it is removed. I want as much leaf surface as possible to get a good root growth at the same time. The fourth year's treatment can be to put the orchard in cow peas, leaving the four feet on each side of the tree row, again, for cultivation. The fifth year put in clover, leaving the four feet space on each side again. At this time the orchard ought to be about ready to begin bearing, and ought to be in most excellent condition."

A. V. Schermerhorn, Kinmundy, Ill., would insist on thorough cultivation, and warns growers to look out for borers. Spray the young trees from time of planting to keep off fungous diseases and insect pests. S. W. Moore of West Virginia talked along the same line, all the speakers making special emphasis of the fact that the value of an apple orchard depends to a great extent on the treatment it recives for the first five years after trees are planted.

W. T. Flournoy's paper was read by his wife, and was a good one—as is generally the case with articles furnished by this gentleman. He said different locations and different soils called for different treatments. He wants trees to have plenty of room to grow, and believes most apple trees are planted too close. He planted 27 feet apart in 1890, and is now engaged in cutting out alternate trees. Mr. Flournoy believes in cultivation, yet said that clean cultivation for years will remove certain elements from the soil which are necessary to fruit production. Well-cultivated orchards bear more perfect fruit, bitter rot disease being especially worse in neglected orchards. Cow peas should be planted about the first of July, cultivation having been given until that time. Cultivate the cow peas several times, and if drouth sets in, keep the cultivator going and sacrifice the cow pea crop. Mr. Flournoy believes in and practices spraying, using liquid process, yet does not believe it is possible to entirely control the codling moth by spraying. This insect does more damage than all others.

Secretary Wesley Greene of the Iowa State Horticultural Society said that cultivation and mulching are two important factors in the management of an orchard after the first five years. He believes in cultivation until midseason, and in the north would provide a mulching for the roots. This is to prevent winter killing. Mr. Greene entered a most vigorous protest against sod or hay crop in an orchard. As to cultivated crops, would perhaps use corn even after the orchard was five years old, but would always consider the trees as the one important crop to be grown. Some such crops as clover, cow peas, vetches, etc., should be grown to add nitrogen and humus to the soil; would spray his trees, and also dispose of the early windfalls, so as to get rid of as many of the early brood of codling moth as possible.

Mr. Tippin of Missouri said this gathering of fallen apples will not remove as many larvae of codling moth as had been supposed. He told of an experiment made by an orchardist near Springfield this season which demonstrated this. This gentleman put a hog-tight fence around his orchard, intending to turn the hogs in to consume the fallen fruit. This orchard had been sprayed. Desiring to find out whether or not the plant would really destroy the worms, the gentleman collected 100 apples which had fallen from the trees and cut them open. He found only 4 worms, the other 96 having escaped. Then he took 100 apples from the trees which had contained worms, to see what conditions existed there. From these apples he secured 10 worms, 90 of them having escaped before the apples had even fallen. Thus it was shown that hogs in the orchard would not destroy the larvae, as has been claimed, for the reason that such a very great percentage of the worms leave the fruit before it falls from the tree. Experimenting further, this gentleman placed a burlap band around the tree and caught 200 worms. Another man experimented along the same line, and placed three separate bands about one tree, desiring to see whether more of the worms came from above than from below—whether, in other words, most of the worms left the apple before it fell from tree or afterward. The result was that the test showed over twice as many worms under the upper band as under the lower one, with very few under the middle band. This proved to this gentleman that poultry and hogs in an orchard cannot get many larvae of codling moth from fallen apples.

Prof. French of Illinois told of some experiments in mulching orchards to prevent winter-killing of roots, and believes the plan will succeed. Prof. Green of Ohio told of the plan of F. P. Vergon of Ohio, who practices the plan of mulching his orchard, giving no cultivation. Mr. Vergon was on the program, but was unable to attend. However, the Fruit-Grower has a most excellent article from him, which will explain the treatment he gives his orchard, and which will be interesting to our readers. It will be published in full. Prof. Green said Mr. Vergon's plan is to grow his trees in blue grass sod, not allowing a plow in his orchard. The trees were planted sixteen years ago, a hole four or five fee across having been dug for the trees. Mr. Vergon digs about the trees for the first few years or mulches with coal ashes. Mr. Hitchings of New York, who practices a similar plan, mulches with manure. Neither gentleman ever removes any grass or hay crop from the orchard, leaving the same to rot on the ground. Mr. Vergon raises excellent crops of apples and his fruit does not drop.

Prof. Green also said that at the Ohio experiment station some experiments were being conducted along this line. Part of an orchard is kept clean cultivated, part is mulched with straw, and part is mulched with grass. So far the best results are obtained where the trees are not cultivated.

R. A. Simpson of Indiana told of his experience in banding trees. It should be stated here that Mr. Simpson is a most thorough sprayer and has practiced spraying for a number of years. To show how careful and watchful he is we will say it was he who discovered the cankered spots on limbs of apple trees, which serve as hiding places for germs of bitter rot disease. This year Mr. Simpson tried banding trunks of apple trees to afford hiding places for codling moth larvae, so numbers of them would collect in one place, where they could be quickly killed. The experiment included banding each limb of the trees, and also trunks on eighteen trees. The

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test ended on the first of November, and up to that time 1,300 larvae of codling moth had been destroyed. Over 400 larvae were killed on a single tree, and 100 larvae under two bands. The bands were placed on the trees the first of July. This orchard was sprayer four times. Mr. Simpson believes in banding the trees as an adjunct to spraying. Three-fourths of the worms in his test were found under the upper bands, showing, as was the case in the Missouri experiment, that most of the worms come from above.

Mr. Erb of Memphis, Tenn., whose orchards are in Missouri, said he believed spraying, if properly done, will be effective in controlling the codling moth. The work must be thorough, else it will not pay.

Prof. Green of Ohio reported that experiments in his state had shown that arsenate of lead, or Disparene made by Bowker Insecticide Company, Boston, Mass., has been more effective than paris green. Costs a little more, but remains in suspension much better and sticks to trees.

Mr. Barnes of Kansas reported that in Colorado some orchardists use burlap bands amout trunks of apple trees to trap larvae of codling moth. At intervals these bands are removed, and some growers have a kettle of boiling water in which the bands are dipped, killing the worms instantly. Other growers have an ordinary clothes wringer mounted on a wheelbarrow; the bands are run through this and of course all worms or pupae are crushed. He paid tribute to the orchard of J. H. Crowley, Rocky Ford, Colo,. which he said was the finest orchard he had ever seen anywhere.

A delegate from Missouri called attention to the fact that those who desire to try the plan of mulching their apple trees must be careful that no ground mice are in that neighborhood, or the mulch will act as a harbor for this pest, and the mice will ruin lots of trees.

Wednesday Prof. French of Illinois gave an interesting address on 'Fungi." He paid special attention to bitter, rot, in which orchardists of southern Missouri and Illinois are interested. He said the spores of this disease pass the winter in cankered spots on branches and in apples on the ground. He mentioned the small brown spots on apples this year, particularly on Jonathans, and said some persons have claimed these are spores of bitter rot in its incipient stage. Bitter rot apples, when found in an orchard, should be destroyed by all means; pick up the mummied apples and burn them. Hunt out the cankered spots on the limbs, for from these spots the spores spread. Spraying with Bordeaux mixture (four pounds lime, four pounds copper sulphate, fifty gallons water), cutting out the cankered spots and destroying the mummied apples were recommended as best beans of fighting the disease. Prof. French does not believe in winter spraying, for the spores in winter state are impervious to action of water. Spray in spring before leaf bud opens, just before blossom buds open, and again just as petals are falling. He does not believe in spraying while trees are in bloom.

Prof. French referred to the red cedar fungus, which has caused much damage to apples throughout the country. This is a fungus disease, which spends part of its existence on the red cedar tree and part on the apple. Early in April the disease appears on red cedar trees from spores which germinated on the apple. After spending a season on the cedars, another stage of the disease is reached when the spores go back to the apple and there complete their life history. He would not recommend red cedar trees as a windbreak for apple orchards.

Mr. Perrine of Illinois: "Last year we thought this trouble on our apple trees was caused by the dry weather. Now, how did these spores 'evelop in such a dry season?"

Prof. French said the spores come out on a rainy day and before night are ready to spread. To fight this disease and at the same time save the red cedar trees it will be necessary to go over the latter and take off all the balls known as cedar apples. It has been found too, Dr. Whitten said, that while naturally it is necessary for the disease to be partly developed on the cedar and partly on the apple, this is not always necessary, for the disease can live over, in a certain stage, on apple alone.

Dr. J. C. Whitten of University of Missouri delivered a very interesting talk on the subject of "Fungi." He told of the divisions of fungi into two general classes "saprophytic" or one which feeds on dead or decaying organic matter, such as mushrooms, etc. The other class is "parasitic." or fungi which feeds on live plants, taking their food and juices from living plants. To this class belong the rusts, mildews, molds, etc. Some forms of fungi are both saprophytic and parasitic, beginning on dead matter and then attacking living things. These are the forms which are often noticed on trees, having attacked a dead limb, perhaps, and then working on the living part of the tree. Thus it will be seen how important it is that our trees be kept in a healthy condition.

"While spraying to prevent injury from fungous diseases is important," said the Doctor, "it is really a secondary operation, and is not the most important thing. We spray our trees to prevent diseases from spreading, but we must remember that when we properly care for our trees we help to prepare them to resist the diseases. If we must discontinue the work of spraying or abandon the work of trying to keep our trees in a thrifty, growing condition, by all means let it not be the latter. It is better, I believe, if we cannot do both, to so treat our trees that they will make a normal, uniform growth, and thus prepare them to resist attacks of diseases.

"I am afraid we do not appreciate sometimes what it means to neglect our trees. Take a tree which is headed high, for instance. The trunk of the tree is exposed to the rays of the south and west sun during the winter season, and many persons think nothing of this. Yet tests have proven that the temperature of the bark on the southwest side of a tree trunk thus exposed is 23 degrees higher than the temperature of the atmosphere. This has been demonstrated by inserting a small thermometer beneath the bark. Now, suppose the temperature of the atmosphere is 50 degrees, which is frequently the case in some days during the winter, when the sun is bright. Add 23 degrees to this, and you have the temperature of the bark at 73 degrees. Now, at this temperature the bark can start to grow, and the sap become active. This condition exists during the day, but at night the temperature drops, the bark is bound to be affected, and damage results. A few days of this condition, and by relaxing and contracting the bark has become loosened from the trunk, and dies. Thus we have the condition known as sunscald, which many persons have supposed was caused in the summer season, when as a matter of fact the damage was done in the winter. A sunscalded tree is then apt to be attacked by flat-headed borers and other insects, and the decay of the tree sets in. To have protected the south and west sides of the tree trunk from the direct rays of the sun in the winter time would have prevented this trouble."

Dr. Whitten said he would not recommend the discontinuance of spraying, for he believes every fruit-grower must spray. But he wished to make plain the fact that spraying will not do everything. He referred to the dust process of spraying, and told of a number of large orchardists who have used it, with satisfaction. At the Missouri Experiment Station some tests have been made with the dust process, and, while in no cases have results from the dust been as satisfactory as where trees were sprayed with the liquid spray, he believes the dust is still very helpful, and is worthy of further trial. He said that the lime dust used as a conveyor in the dust process is in itself somewhat of a fungicide, for it has been found possible to entirely control peach leaf curl, a very destructive fungous disease in some sections, entirely by use of a whitewash made of lime and water. The objections which he finds to the dust process are that the dust cannot be as well distributed, will not stick to the foliage as well as the liquid and the sulphate loses part of its effectiveness when used in the dry process.

Prof. John T. Stinson of Missouri, said that at the Mountain Grove Station some experiments have been carried on with the dust process, which seem to indicate that the dust will help to control the early broods of codling moth, but the process is not a success for bitter rot. Prof. Stinson said one grower gave up the liquid process to use the dust in spraying for bitter rot, and lost his crop of fruit. Next year both the dust and liquid sprays will be used, tne dust being used early in the season, and the liquid process later. As to controlling bitter rot, Prof. Stinson said there is no question that the disease can be controlled by use of Bordeaux mixture in liquid form. Spraying with liquid Bordeaux had saved 60 per cent of the crop from bitter rot, while trees left unsprayed matured only 1½ per cent of their crop, the remainder of the crop having been taken by the disease.

Prof. Blair of the Illinois Experiment Station said he wished to impress only three points concerning funguous diseases. The first is that some plants seem to be somewhat immune from diseases, while others are much more subject to attacks. The grower must investigate these varieties in planting his trees. From the standpoint of its susceptibility to diseases alone, he said, no one should think of planting the Huntsman apple in commercial orchards in this section. Instead, one should select those varieties which are least liable to attack, with due regard, of course, to their other good or bad qualities. The second point is that fungi flourish best in dark, humid atmosphere, so growers must be careful in wet seasons, especially, and in planting must, so far as possible, avoid low areas. Attention must also be paid to pruning so as to prevent dark, damp places about the trees. The third point is that later years have proven that it is not enough to spray trees in the old way. The leaf surface of the tree must be covered with the spray mixture, which, at best, is only a preventive measure in fighting fungous diseases.

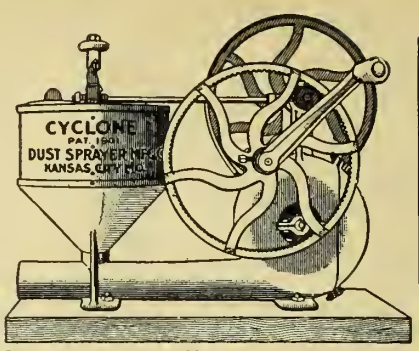
"And in this connection," continued Prof. Blair, "I would say we must be careful about the apparatus we use in spraying. Just any old pump and any kind of nozzle will not do. We must have the best apparatus obtainable, and must use a pump of great power, to produce the mist-like spray which is so necessary. As commercial growers we must consider the advisability of using more powerful pumps than many of us have been using. And, too, we must pay more attention to getting the mixtures properly made. These are the details of spraying to which I would call especial attention."

U. T. Cox of Ohio, told of having been unable to spray one tree in his orchard, on account of its being at an inaccessible point, and that tree is attacked by fungi, while the sprayed trees are always exempt.

Mr. Dunlap said that the trees on low areas are not always attacked by fungi more readily than those on high places, for he had seen orchards where the reverse was true. Mr. Voris of Illinois confirmed this statement, and said he had seen apples on hillsides affected with bitter rot, while trees lower down had borne good fruit.

Mr. Tippin had observed, he said, that last year the bitter rot was most destructive in locations where moisture

Continued on Page 21.



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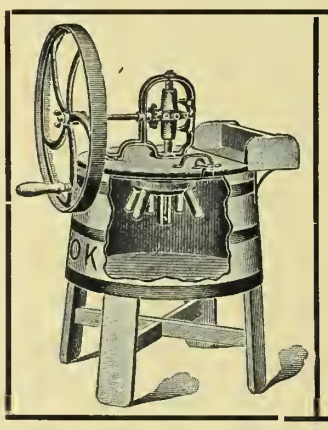

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More About the Ben Davis.

The publication in your journal a few weeks ago of my letters on the Ben Davis apple has brought to the front a number of defenders of old Ben. Strangely enough the parties coming to the rescue of this declining apple are those having large Ben Davis orchards—many of them planted years ago when this variety had more claims to recognition than it has now, or ever will again. It is natural for a man to set a high valuation on his property, and of course such people frown at any statements that reflects on their judgment or orchards. An apple dealer in Kansas City who is loaded to the guards with Ben Davis makes a hard fight for it in a communication to several trade journals patronized by dealers. The gentleman declares he has letters from many states calling for Ben Davis, but he neglected to add that it was useless for them to ask for any other variety, and that they were likely to look for the low figures likely to arise when the Ben Davis were so plentiful and all other varieties so exceedingly scarce.

At the late meeting in this city of the National Apple Growers' Association I met a large number of men whose orchards unfortunately were composed largely of Ben Davis. Many of them admitted to me that if they were planting again they would raise more varieties that would be acceptable in every market and worthy of the patronage of all—something that would command good prices, regardless of how low Ben Davis figures were. Other growers thought I wanted them to root out all their Ben Davis orchards—an idea I never entertained. A number of these gentlemen submitted what they regarded a knock-out argument on "What will you give us instead—what will take its place?" Now there is no necessity for seeking or presenting any one variety, but as I stated in my article, several and not one variety should take its place. W. T. Flournoy of Marionville, Mo., one of the most successful fruit growers in the state and who owned too many Ben Davis trees to condemn them, acknowledged that the article would do much good, as it would set the people to thinking and would doubtless change many existing ideas and was especially valuable to those contemplating setting out new orchards. In fact nearly all admitted there was enough already planted and it was time to call a halt on the Ben Davis, because if another tree was not planted in the next twenty years, the western markets will remain deluged with it during all that time, because hundreds—I might say thousands—of orchards are composed mainly of young Ben Davis trees.

The veteran editor of the Fruit Growers' Journal, of Cobden, Ill., in an editorial following my article in his columns, hit the Ben Davis much harder than I did, and no man can draw on a wider or longer experience among the fruit growers of Illinois. He has been fighting it for years in favor of better apples.

An eminent authority in New York city, who stands on ground as impartial as the writer does, writes me in a private letter: "Personally I feel sure that the Ben Davis apple has done more to demoralize and degrade the apple trade in this city than any one thing. I believe it is possible to work up an enormous trade in all our larger towns and cities for apples of high quality and good flavor."

The past several years steadily developed the fact that the puslic taste and demand is for quality, regardless of the higher prices attached to the better quality. The inferior and less desirable products are becoming harder to dispose of in every market. I predict that each coming year will show the Ben Davis more neglected by consumers and a growing desire for finer fruit at good prices.

At the recent Apple Growers' convention here, a great advocate of the Ben Davis said to the writer:

"What are good Ben Davis worth in the market today?"

"Two dollars a barrel."

"How much are Winssaps worth?"

"Three dollars."

"Well, sir, at these figures I can make more money at raising the Ben Davis."

Now, at first glance, this may look fairly well for the Ben Davis advocate but let us analyze it. Figure out the cost of the two barrels for the Ben Davis, the picking and packing of both, the freight to market and drayage on the two, and see what a trifle results in the way of net proceeds and set it up against the net proceeds of the one Winesap, and I think you will discover between the lines of figures the route to the poor house. However, let us approach the matter from another side which cannot be avoided—that of cold storage, where nearly all must go—here is $1.20 for drayage and storage against 60 cents for the Winesaps. Comparisons in this case may prove odious, but they will become much more so when we substitute more desirable varieties than the Winesap as against the Ben Davis for the consideration of apple growers. The railroads, cooper shops and cold storage plants will become the principal beneficiaries of the Ben Davis craze—the fact that the Ben Davis may be worth only half as much as many other varieties is of no concern to these parties. P. M. KIELY.

St. Louis, Mo.

In Favor of Ben.

The friends of Ben Davis desire to thank you for your defense of that fine apple. I enclose the apple quotations in this evening's Kansas City Star. The Star has no bias for or against this stand-by of the cook, and I take it the quotations are correct. They are made also for Kansas City, the very center of the Ben Davis and Gano development, where nobody can be "fooled" into buying Ben Davis, for they all know it. Please note, then, that "fancy" Grimes, Huntsman and Jonathan are only 75 cents higher than "fancy" Ben Davis, and the No. 1 are only 50 cents higher. There are easily fifty barrel of Bens sold to every barrel of Grimes or Huntsman. People buy them because they want them; we orchardists raise them because people buy them.

There is more profit in Ben Davis at $2 per barrel than in Huntsman or Grimes at $10. There is a class of la-de-da critics with whom anything that is "common" and plentiful is "unclean." Their influence on the markets may be judged by the market reports.

Will you publish any of the papers presented at the Missouri and Illinois meetings? If so, some of us are interested in spraying (wet and dry), orchard cultivation and trimming.

Wishing the Fruit-Grower a long life, I am sincerely yours,

EDWIN TAYLOR.

Edwardsville, Kan.

The quotations referred to by Mr. Taylor are as follows:

Apples—Jonathan, Grimes' Golden and Huntsman's Favorite, No. 1 to fancy, per barrel, $2.50 to $3.00; Missouri Pippin, Winesap, Gano, etc., No. 1 to fancy, $2.25 to $2.75; Ben Davis, No. 1 to fancy, $2.00 to $2.25; No. 2 and other varieties, $1.00 to $2.00. These prices for standard pack; country pack less.

Another Score for Ben.

I have just sorted my apples over in cellar and find the the Bens in a great deal better shape than any others, and what were rotten were nice about it, as they were not a wet rot and mashed up like the others. The Winesaps have come like the New York ones, scabby and moldy and then shrivel up to nothing. I took a few Bens to town yesterday and found a ready sale for them (75c by trade), and have several inquiries about apples, and when asked what kind they wanted, they would say, "Oh, Ben Davis, as they are keeping;" or, they would say, something that is keeping. There is a great deal of complaint about apples not keeping; but I find the ones I picked carliest and stored immediately in the cellar are keeping best. All fruit trees and vines are going into winter in fine shape.

G. E. ADAMS.

Darlington, Mo.

People of this section have been slow in planting trees until the last few years, and now they are planting quite extensively. They have been humbugged somewhat by irresponsible nurserymen and salesmen. I have sold some trees, and wish to say that in the past year I have not taken one order for a Ben Davis apple tree; people say this variety is too dry and tough. The better varieties bring much better prices, and lately I have sold some of the good sorts for 2 cents per pound. How is that for price? A. W. MONTGOMERY.

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Annual Meeting of the Missouri State Horticultural Society

The forty-fifth annual meeting of the Missouri State Horticultural Society, held at Springfield, Dec. 2 to 4 was one of the best meetings ever held by this society. Drury College chapel was the place of meeting and amply accommodated the large number of guests that assembled for the seven sessions. Delegations were present from Illinois, Ohio, West Virginia, Iowa, Kansas, Tennessee and Arkansas. Fruit growers from all parts of the state were present in large numbers.

The meeting was very enthusiastic and harmonious throughout.

More than 2,000 plates of apples were on exhibition, besides a number of pears and various fruits preserved in jars.

All the officers of the society were present when President D. A. Robnett called the meeting to order. Short welcome addresses were made by Mayor Melette, Vice President Geo. T. Tippin and T. H. King, president of the local society, which were responded to by C. H. Dutcher of Warrensburg in his usual manner.

The first paper on the program was, "Flowers on a City Lot," by Mrs. J. T. Snodgrass of Kansas City, who first spoke of the memories of a grandmother's garden away back in Vermont, where the season for flowers is short, as compared with the Ozarks. This garden, the admiration of all who beheld it, filled with lovely old fashioned flowers, one of most pleasant memories and taught many lessons.

Quite different to plan for flowers in a city lot, where space is limited and the soil of anything composed of a mixture of sticky clay, ashes, clinkers, old iron, etc. Here is needed loads of dirt and stable manure. Some hints were given regarding some well known plants; among them, location was an important factor. Sweet violets, grown in a warm situation with only slight protection, gave pickings all winter. Pansies sown early in the fall, under glass so arranged as to be turned back on warmer days—produced fine plants to be set out early in April and bloomed from early until late in summer.

Sweet peas pay where careful preparation of soil is made before planting, which is best done in November or December. A trench two feet deep should be dug, the bottom having a row of rocks, with a bit of piping at the ends to permit of bottom watering; then put in six inches of manure, followed with alternate layers of manure and soil, with black soil at top. Plant seed five inches deep, using only very best seeds.

The running nasturtiums, planted on south side of house, will give bloom long after the earlier dwarf varieties have ceased to bloom.

Clematis paniculata does well in northern exposures, the writer having had thirty feet of growth on a vine planted on north end of piazza, and rivalled only by an Empress of China rose growing on south side. This rose crowds the Crimson Rambler for first place, blooms from early May till autumn, bearing a bright pink flower in clusters. She named Empress of China, Crimson Rambler, Climbing Meteor and Mrs. Perry as favorites.

The soil for cannas given the same preparation as for sweet peas would well pay for the work by producing many gorgeous varieties.

The hollyhock is one of the best plants with which to line the edge of back-yard fences.

The civic movement for gardening is to be commended, as it creates a love for the beautiful and causes many waste places to blossom with beauty.

"Elements of Horticulture in the Public School," by State Superintendent of Schools W. T. Carrington, who gave the history of the growth of our school system, beginning with the first school in St. Genevieve county, in 1808, was the next paper.

In 1853 an act was passed to levy a school tax, since when rapid progress has been made. At first little more was taught that the three "R's". Other studies were added as the surroundings showed were necessary, until a long list is now found best to properly develop the child and prepare him for the best service in all conditions of life. The progress of the nation is due to education, and hence the schools sustain an important place in the history of a country.

Nature studies do not interfere with elementary work. Study of horticulture puts the child into close touch with natural environments. The teaching of common things bring teacher and scholar closer together, and nature studies not science, but a knowledge of natural things. Nature is many sided, and each child will see her in a different light, and by these variations may the individuality of the child be ascertained. Nothing equals nature studies to teach a child to observe and attract interest, and, above all, bring children in close touch with his environments and secure an interest in these things in after years.

"Location and Elevation" was a subject led by a paper by Charles Teubner of Lexington, Mo., who spoke of the hills along the Missouri river as being of special value to the Missouri fruit grower. Here the moisture tempers the atmosphere and refreshes both land and trees. The temperature resists frosts, and peach crops may be matured here when none are saved in less favored places. While this is a desirable location, orchards may be planted all over the state. Commercial orchards should be within easy reach of railroads. Good orchards are grown on all slopes. As a rule, I prefer elevated level land; then east, south, west and north, in the order named, so soil is well drained.

Elevate sites so as to permit good drainage; frost is not so liable to do damage, and the wind prevents insects from doing so much damage. No shelter belts of timber are wanted, but sites free to sun and air.

In orchards running from hill to valley, on low ground the frost came quicker and fruit ripened and had to be picked earlier. The fruit lacked color and was spotted with sootey spots.

Discussing this subject, Mr. Murray said it was a great mistake to plant on all kinds of soil, or on any that had subsoil that would not permit of free drainage, unless ground was tiled. He cautioned against too deep planting and favored low topped trees. A little pruning done each year, and no heavy pruning would be necessary. He preferred a high north slope.

Further discussing the subject, he argued there was not much advantage in any certain slope; much more depends on the surroundings. Open sites free to sun and air are preferred, and shelter belts of timber are not wanted. Orchards on low lands generally show a larger growth of trees, and require more pruning, but after the first two or three crops, the fruit lacks in color and quality and is often covered with smoky spots. Trees on high ground are not so large, but healthier, and fruit is better in both color and quality. It is necessary to get free circulation of air, and bearing orchards should have weeds and other growth kept down. The methods of caring for orchards are largely determined by location and climate, both of which possess great individuality, as does the tree itself. We cannot establish any set rules to govern all alike.

Cultivation is a great factor in orcharding, and here again the study of conditions and season are necessary, as all soils do not need the same treatment.

Mr. Chandler of Kansas City stated one of the best orchards he ever saw was grown in a valley in Kansas, and he would be careful of all ironclad statements.

Mr. Gardner, speaking of sunscald in winter, said, when the sun is in the south and southwest, the heat expands and the bark draws back from the tree and the tree freezes.

Major Holsinger of Kansas men-

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I have no samples, because any medicine that can affect Rheumatism quickly must be drugged to the verge of danger. I use no such drugs, and it is folly to take them. You must get the disease out of the blood.

My remedy does that, even in the most difficult, obstinate cases. No matter how impossible this seems to you, I know it and I take the risk.

I have cured tens of thousands of cases in this way, and my records show that 39 out of 40 who get those six bottles pay gladly.

I have learned that people in general are honest with a physician who cures them. That is all I ask.

If I fail I don't expect a penny from you.

Simply write me a postal card or letter. I will send you my book about Rheumatism, and an order for the medicine. Take it for a month, as it won't harm you anyway. If it fails, it is free, and I leave the decision with you. Address Dr. Shoop, Box 436, Racine, Wis.

Mild cases, not chronic, are often cured by one or two bottles. At all druggists.

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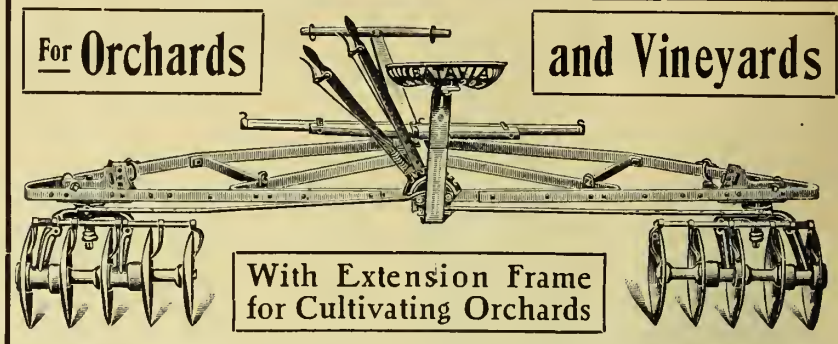

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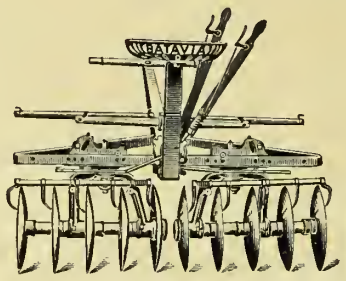

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to those who write for it. Ask for our Planters Wholesale Price List. It will save you 25 to 50 per cent on trees. All stock guaranteed true to name and First Class. Write at once to

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Paid their owners 400 per cent this season. Will pay 40 per cent at least annually. Come into bearing as early as do apple orchards. We pay 6 per cent annually while orchards are growing.

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MRS. TYRA MONTGOMERY,
Box 186, Larned, Kansas.

tioned the three most important factors in orcharding to be varieties, soils and cultivation, and the last named is the greatest factor.

If I had 160 acres, I would plant all but vary care to suit. I prefer a north slope.

Mr. Helvern of Arkansas has practically rid his orchard of aphis by drawing the dirt away from the body of the tree and allowing the water to fill in.

Colonel Vincenheller of Arkansas looks most carefully to location and elevation. The latter will fix air drainage.

Mr. Schermerhorn of Illinois considers the soil problem a local problem and air drainage necessary.

Mr. Perrine of Illinois: I haven't elevation or slope to speak of, but make a success by adapting variety to conditions, and vary cultivation to suit both soil and variety.

Varieties for the Ozarks led by J. B. Wild, Sarcoxie.

The selection depends largely upon location. He first mentioned Ben Davis as the pioneer of commercial orcharding in the west. He had seen its days numbered for twenty-five years, yet still the great dividend producer stands as the big red apple of America. It has better form, fewer off years, is hardy, productive and finding its way into all the markets of the world. He has been looking for a better variety, but at present would plant Ben Davis as first choice; Gano a close second. A newer variety is Payne's Keeper; it makes a good orchard tree and produces good apples.

He spoke of the Collins as of good color and a good bearer; quality not so good.

He declared the Grimes Golden was of best quality and finest flavor; next the Jonathan for attractive appearance and good qualities, and keeps about like the Grimes.

Stayman's Winesap, covered with stripes, quality good to best. The Winesap wants suitable soil. The York Imperial needs deep soil for best results.

Ingram; been fruited many years; a regular and heavy bearer; resembles Benoni in color.

Wealthy is finding a good place as a fall apple; tree hardy and vigorous; a prolific bearer and good color.

Coffelt, a seedling of Ben Davis, an abundant and regular bearer; longer keeper and superior in quality to Ben Davis.

Nixonite, also named for Ozark region; also grown as Ozark Mammoth. Many old trees are scattered throughout southeast Missouri. It is a strong grower, comes into bearing rather late, of large size, rather coarse and acid; keeps longer than Bellflower, and is a good cooker.

Mr. Gilkeson of Central Missouri, named Ben Davis, Jonathan and Grimes Golden as the best three varieties.

Mr. Karnes of St. Joseph: I find Yorks do best on high location. Wealthy is the best summer apple; for winter, the Ben Davis, Jonathan and Grimes Golden.

Mr. Murray finds it useless to plant Grimes Golden unless top grafted. He named the Jonathan, Ben Davis, Gano, Winesap, Missouri Pippin and in certain locations York Imperial as winter varieties; and the Early Harvest, Red Astrachan, Benoni, Duchess and Wealthy for summer. The Yellow Transparent blights badly.

Mr. Butterfield recommended, for north Missouri, the Gano, York, Missouri Pippin and BenDavis, and for south Missouri, the Gano, York, Ben Davis and Winesap, when the location is right.

Others gave lists about same varieties.

"Care of a Bearing Orchard," was the subject of a paper by W. T. Flournoy of Marionville. The paper was read by Mrs. Flournoy. He said different conditions and locations need different treatment. The treatment should be such as to cause the trees to grow thriftily. This will not cause barrenness if properly balanced. Don't plant too close. First crops exhaust the plant food near the tree, and nothing is left to draw upon. The sun is a great and necessary factor, not necessarily on fruit, but on foliage. If not ground space enough, heavy pruning is needed, and I would prefer to cut out every other tree to heavy pruning. It don't pay to dig up trees where not intended to set other trees, cut close to the ground and they will soon rot off. In cultivation the same treatment cannot be followed each year. I usually find the 15th of May early enough to begin cultivation. Legumes planted in an orchard are generally good. We use one horse turning plow near trees and run close and shallow near the tree. It breaks roots some, but we consider it a less evil than no cultivation. After small plow has made about three rounds, use big plow and double team. All orchards not cultivated, or where trees are set too close and poorly fed, cannot support a big crop of fruit and easily succumb to disease. Best prevention of bitter rot is good cultivation and spraying to keep trees healthy. We prefer a dead tree to a stunted one. We use 15 pounds of seed peas when drilled. Don't plant too early—the 1st of July is early enough—and cultivate peas two or three times, unless drouth comes, when it may be necessary to sacrifice the crop of peas and keep up cultivation. If you can keep the tree strong and thrifty and keep out codling moth, you will not have much to fear.

"Renewal of Old Orchards" was the subject of a paper by W. G. Gano. He said trees grown on rich western soil come in bearing much earlier than in the east, and by the time they are twenty years old they are often so exhausted by over-bearing that their usefulness is greatly interfered with, and fruit grown on these trees is of inferior quality. Take an orchard of this age that shows signs of decay, judiciously prune the dead and dying limbs, taking care not to cut new wood; scrape off old rough bark and wash with soap suds or some other preferred wash. Constant war against insects and fungi helps give the tree good, healthy lungs. Much of the failure of old orchards is due to starvation. In renovating or cultivating old orchards, shallow cultivation is the best. Fertilizers are an important factor; the cheapest and most practical to grow green, in the shape of cow peas, and when first pods ripen, turn under. Trees thus treated take on vigorous growth, and fruit becomes larger and smoother. When trees are too far gone, it is not well to waste time and money on them, and as a rule it is better to plant a new orchard or plant the old one to other fruits.

"Rotation of Fruit Product" was a paper by Homer T. Fuller, president of Drury College, who said he had noted the tendency of nature was to gradually change. Forest trees were gradually being replaced by other varieties. In orcharding, he noticed that where old trees died out of a bearing orchard, it did little good to replace with the same kind. In the east this is seen in many places. In Connecticut, where once grew apple trees, then pears were planted, and now peach orchards grow and flourish where once considered impossible to grow them. So changes might be noted in many places. In Michigan, apple orchards are giving way to peach orchards. Old orchards where apple trees grow, while they refuse to grow new plantings of apples, may grow peaches, cherry or pear trees successfully. I would ask if the use of soft coal in great quantities, where there is a perpetual reign of soot and smoke, is not a damage to orchards? It is worthy of consideration, at least.

The subject of spraying was first taken up by J. C. Evans, who has heretofore used liquid spray. He has seen dust spray in operation, and having faith in it, expects to use it next year. Liquid spray is all right if done well, but he found it very easy to make a failure of it, and thinks this has caused it to be condemned many times. In close observation the past year, and in many orchards, the benefits of spraying were more fully shown than ever before. No need to ask if the orchard has been sprayed. The fruit shows it by freedom from worms and stings. There is a large per cent of perfect fruit grown where spraying is rightly used, and there are many converts to spraying in consequence. Different formulas may be obtained from the experiment stations.

F. H. Speakman advocated spraying and said the best and most perfect crops raised near Neosho were those that were sprayed. He has always used liquid spray.

R. E. Bailey of Fulton has used liquid spray and almost entirely prevented scab and holds insects in check by its use.

"Dust Spray" was introduced by W.

(Continued on Page 11.)

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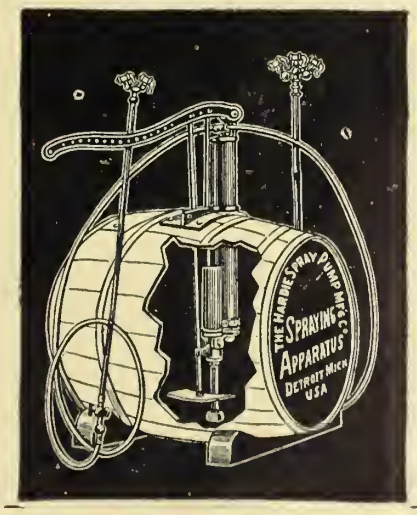

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THE WESTERN FRUIT-GROWER

AN ILLUSTRATED MONTHLY MAGAZINE FOR PROGRESSIVE WESTERN FARMERS

ST. JOSEPH, MISSOURI

Volume Twelve DECEMBER, 1902. Number Six

W. G. Campbell, Jr. .....General Manager
James M. Irvine ..... Managing Editor

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The statement was recently made that a large shipment of apples made by Conrad Schopp of St. Louis to the German markets was seized and condemned by the German government because the fruit was infected with San Jose scale. The apples came from Illinois. There was much uneasiness felt by apple shippers, but it appears that the first statement was not entirely true. It appears that some of the fruit which was shipped to Germany by Mr. Schopp arrived in a slightly damaged condition. At the suggestion of the local persons interested in apple culture, the whole consignment was seized. Investigation proved that there was no San Jose scale, but the Germans had used this as an excuse to justify their action. When it was learned that the fruit was to be shipped to another part of the German empire to be marketed, objections were withdrawn, and the fruit was released. All this shows one thing, however, and that is that while the German government, or any other government for that matter, is so anxious to find provocation to condemn any shipment of fruit, American exporters cannot be too careful to see that only perfect fruit is sent abroad. It does not matter that the European countries sent us many of our worst pests—the fact remains that they will watch our fruit most carefully, to see that none are returned, and they will use any indication of insect pest or fruit disease as justifying their action in barring out all our fruit. In this connection it might be said that while we are so anxious to please the foreign market, we might make some effort along the line of pleasing the home market as well. But we will simply have to please the foreign market, whether we desire to do so or not.

We desire to ask that all readers of the Fruit-Grower who are interested in apple growing to consider the question of uniting with the members of the American Apple Growers' Congress in an effort to improve existing conditions in the marketing of apples. It should be stated that the American Apple Growers' Congress is not intended to be a trust composed of apple growers, as some of the yellow journals have declared, but it is intended to be an association composed of those interested in commercial apple growing, and the chief objects are to secure an accurate reporting of the crop for each season, discussion of the packing and marketing of the fruit, and other questions of a commercial nature which are connected with the business. Thus it will be seen the new association is not intended to supplant the various horticultural societies in any way. No effort is to be made to market the apple crop of the members, nor to fix a price on the same. After the members have submitted their estimates as to the probable crop, they will naturally be in better position to know the price which should be paid for fruit, but, as we understand it, there is to be no attempt made to secure uniform prices. The work of the association is along practical lines, and the new organization should have the support of every apple grower. Membership fee for the first year is $3, afterward it is $2 per year. Life membership costs $20. T. C. Wilson, secretary, Hannibal, Mo., will receive membership fees, and reports that since the adjournment of the first session of the organization he has received many new members.

The special edition of "The Horticulturists' Rule Book" which was printed for readers of the Western Fruit-Grower is ready, and a great many have been sent to those who ordered same. We believe this is one of the very best premium offers ever made. The book of 312 pages, with 2,000 entries of things which farmers want to know, yet which they cannot always remember, is sent postpaid for 25 cents to our subscribers whose subscriptions are paid for one year in advance. New subscribers can secure the book by sending 75 cents for a year's subscription to the Fruit-Grower and a copy of the book, and old subscribers by paying their subscription for one year in advance and inclosing 25 cents extra for the book. The book is furnished at an unusually low price, even though it is bound in paper, instead of cloth, and for that reason we cannot afford to send it to those who allow their subscriptions to run behind. Pay up and get this excellent book for 25 cents.

Special attention is called to the premium list which the Fruit-Grower advertises in this issue. Nothing is listed which fruit farmers do not need, and for that reason the premium page is worthy of your careful reading. The horticultural and agricultural books offered are the very best on their respective subjects. They are remarkably cheap, when the character of the books is considered, and the proposition which is made to furnish them free for new subscribers is a most liberal one. Any of the books can be furnished for cash at the prices named but when they can be secured as premiums for new subscribers at the rates shown, we believe no one can afford to be without a good list of the books. The pruning shears offered are warranted. They are different from the ordinary pattern of shears, in that the knife works between two guides, one on each side, making a clean cut. In case the shears do not do the work claimed, money will be refunded. The Fruit-Grower has sent out hundreds of the shears, with only one complaint. Look over our premium list, see what you want, and then get up a list of new subscribers and get the premiums free. We will call special attention, however, to the fact that in order to get the premiums all subscriptions must be at regular rate of 50 cents each.

Among the measures which Congress will be called upon to consider, in which farmers are interested, is the proposed post check currency, which provides that all $1, $2 and $5 bills be hereafter printed with a blank space on them which any one can fill out in a moment, making it payable only to the person or firm to whom it is sent. A postage stamp is stuck on another blank space, and the bill can then be sent by mail. Fractional currency in denominations of 10, 20 and 50 cents is also provided for in the same way so that any one, anywhere in the United States, can send any sum from 10 cents up, without the trouble of getting and filling out a money order, registering a letter, etc., and at about half the expense. As the Ohio Farmer says:

"Farmers need a safe, cheap and convenient method of sending money by mail. The money order system is safe enough, but it is neither cheap nor convenient. The post check currency combines all three essentials. Farmers can push this measure through the coming short session if they will take hold in earnest. Write personal letters to your congressmen and senators. Send them petitions and resolutions and when the bill comes up for consideration send them telegrams urging their support."

The next annual meeting of the Missouri State Horticultural Society will likely be held at Columbia, in December, 1903. The Fruit-Grower has believed this the best place for the meeting, in view of the fact that the fruit growers of the state should have an opportunity to visit the University and inspect the new horticultural building which is now nearing completion. Missourians should feel proud of the horticultural resources of their state, and also of the splendid horticultural department which is being built up at the Agricultural College. The new building, which will soon be completed, will make possible better work in all lines, and there should be further appropriations made for additional instructors in this work. Dr. Whitte and his assistants and Prof. Stedman, the entomologist, are among the very best in the United States, but the fruit industry of Missouri has been developed to such an extent that more help is needed in their departments. The coming legislature will be asked to provide additional funds for this work, and fruit farmers should favor the appropriation. Plan to attend the meeting next winter, too, and see what is being done and what is needed. Columbia is not as well known to the people of the state as it deserves to be. Complaint has been made heretofore that the town was almost inaccessible, with only a branch line of railroad. Yet now there are two railroads, and we have no doubt both will make good rates for the meeting next December. A representative of the M., K. & T. company was at the meeting at Springfield, and said he had no doubt that his company would mage the rate one fare for the round trip. The Wabash, too, will likely do this, so that no trouble is anticipated from railroad rates.

The Fruit-Grower has received a very neat booklet, entitled "The Missouri State Fair," which shows views of the different permanent and temporary buildings on the state fair grounds at Sedalia. Many extracts from different papers are also published, showing the good impression the Missouri State Fair has made on the people of this and neighboring states. The booklet is intended to increase an interest among Missourians in this state institution, and it should have the desired effect. A plea is made for support in asking for appropriations for needed buildings. Pavilions in which live stock is to be judged are needed, tents having been used heretofore. A poultry building is desired, exhibits heretofore having been made in a tent. A dairy building, ample in all its provisions, is needed, for Missouri is soon to take the place she should have occupied long ago, at the head of the dairy states. An agricultural and horticultural building is especially needed, for these exhibits will always be prominent features of any exhibits the state of Missouri will ever make. A building for agricultural implements, one for a permanent mineral exhibit and others are recommended, but the ones first mentioned should certainly be provided at once—or at least before the next season's fair. Missouri's State Fair has been started along right lines. No liquor is sold, no cheap fake shows are

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allowed upon the grounds, and no gambling devices permitted. The state should feel proud of the beginning, and the legislature should see that the funds are provided for the improvements so badly needed. The state is asked to furnish the buildings, but the fair will be self-sustaining thereafter.

Recently we had occasion to compliment the firm of Thos. Meehan & Sons, Dreshertown, Pa., for their enterprise in forming their employes in the nursery business into a sort of club, which holds regular meetings and at which different phases of nursery work are discussed. This work is undertaken with a view of helping the employes to become more efficient and to interest them more in the work in which they are engaged. Now another firm has made a similar move. L. Templin & Sons, the well-known seedsmen, Calla, Ohio, have formed a similar club among their employes, and have provided a reading room for their benefit. While this move on the part of these firms is to be commended, for it shows an interest in the welfare of their employes, it is true that at the same time the work should be undertaken from a selfish motive, if for no other. There can be no question that in helping their employes to be more efficient in their work these firms also help themselves—for nothing is so hard to get as thoroughly competent help. As helps to the same end, we have many subscribers who send the Western Fruit-Grower regularly to their men who help in orchard work. One plant grower, F. W. Dixon, Holton, Kan., subscribes for a copy of the paper for every man on his place. From a selfish standpoint, of course, we are interested in the latter plan. But if a club is organized among the men it will be still better. The Fruit-Grower wishes to especially compliment the firms of Thomas Meehan & Sons and L. Templin & Sons for their plan. It is a most excellent one and should result in great good.

One of the best signs in the horticutural field at the present time is the business basis on which fruit growers' associations are being organized. The organization of the American Apple Growers' Congress at St. Louis marks an important advance, and the Ozark Apple Growers' Association and similar organizations will help the work of improvement. There is yet much need for this work, for sections which a few years ago produced barely fruit enough for home consumption are now supplying other markets, and there is consequently much confusion. A subscriber at Pawnee, Neb., tells of the conditions which exist there when the fruit crop is good, with the market glutted and no arrangements made for shipping the fruit properly. Help is desired, and the matter certainly deserves attention. The Fruit-Grower hopes to secure a series of articles on the subject of forming practical fruit shipping associations or organizations of similar character, for there are enough of our readers interested in the question to make such a series profitable.

Some time ago we called for volunteer members of a "One Thousand Club," to be composed of persons who would agree to get at least five new subscriptions each before the first of the year. A great many persons enrolled as members of this cdub, and as a consequence many new subscribers were added to the Fruit-Grower list. It is not yet too late to enroll as a member of this club, however, for our proposition to accept five new subscribers for $1, where all are sent in at one time, still holds good. Of course no premium, other than the book on Strawberry Culture, can be claimed for subscriptions at this rate, but the book on the above subject, by M. Crawford, will be sent free to each one who sends in five new subscribers. Now is the time to do good missionary work for the Fruit-Grower. May we hope to have good lists from several thousands of our readers during the coming months?

There will likely be some disappointment over the fact that the committee which was appointed to investigate the Black Ben Davis-Gano controversy was not able to report at the last meeting of the Missouri State Horticultural Society. But the committee felt unable to make a report at this time, for various reasons. One is that the report of the committee will go on record, and naturally the members do not wish to submit a report which future years will prove to be unreliable. The matter has been much discussed with plenty of good men on both sides, and it is a hard matter to get at the facts in the case. Therefore, we must be patient, for the members of the committee at work on the subject are careful, conscientious and painstaking, and they will do the very best they can. In the meantime, if any one asks us about the identity of the apples, we will have to refer them to the report of the committee, which is yet to be submitted.

One thing which the meetings of the various horticultural societies demonstrate each year is that an attempt is made to crowd too much on the program. Fewer papers, with more time given to discussion, would make the meeting much more profitable and interesting. Two or three good papers for each session of three hours would give ample time for discussion, and the result could not fail to be more satisfactory. No one man can exhaust any subject in a short paper, and the discussion is often necessary to bring out the best thought on the subject. We believe no one thing will contribute more to the improvement of the meetings than this one matter of fewer papers and a more thorough discussion of the subjects treated.

Is Elberta Overplanted?

Noting the great demand we are getting for the Elberta peach this season, it recalls to mind the very heavy demand we had for this variety to supply the commercial orchard planters of the Grand River valley in western Colorado in the '90's. Everybody wanted a large per cent of their orchards in this variety, and it was with an expense and difficulty that we adjusted our peach stock to conform to this demand, but they got Elbertas. We were on a visit to the valley late in September, 1901, when growers were just getting returns from Elberta shipments and several growers reported that they were only getting a net return of 10 to 15 cents per box, owing to the glut on the market; although the season was exceptionally favorable for their best development and it did seem a sacrifice to see such excellent fruit go at nominally a total loss, and although the last shipments gave more favorable returns, many growers regretted that they did not plant varieties to more fully cover the fruiting season, especially the earlier sorts, which usually netted about 70 cents per box. We have usually noticed that it paid to go counter to the prevailing fad of planting only some special sort, to the exclusion of other excellent varieties. We have noted in this locality that the Elbert often often falls behinds other sorts in bushels produced, as well as the price, as there is a good, sharp demand for early peaches which come in before the low-priced seedlings, which affect the market more or less of the better grades. These also escape any disasters, such as hail storms, drouths, etc., which might come to the later varieties after the earlier sorts have been harvested. There are several varieties that we would plant largely of in this section in preference to the Elberta in large numbers at least.

Beatrice, Neb. J. A. GAGE.

KALAMAZOO STOVES AND RANGES DIRECT FROM FACTORY TO THE USER AT FACTORY PRICES

360 DAYS APPROVAL TEST

Send for Free Catalogue No. 135.

KALAMAZOO STOVE CO.
Manufacturers,
KALAMAZOO, MICHIGAN.

FRUIT-GROWERS should have neatly printed letterheads, envelopes, etc. I print them cheap. Samples free. T. M. JONES, Goreville, Ill.

ESTABLISHED 1872 . . . INCORPORATED 1892

New Haven Nurseries

Fruit Trees a Specialty, Wholesale & Retail

LOCATION: 67 Miles west of St. Louis on Main Line of Mo. Pac. Ry.
78,00 cubic feet Frost proof Cool Storage Capital aud Surplus $50000

J. BAGBY & SONS CO.
NEW HAVEN, MISSOURI

Our Nurseries
Are not "on paper," but comprise over 400 acres devoted exclusively to the Nursery Business. Over 160 acres covered with young growing Nursery trees—no old, overgrown, unsalable trees are allowed to stand and thus take up acreage and breed disease. Over a half million trees in our Branch Nurseries at Chamois, Mo.

Peach Trees
433,000 one year from bud and over 700,000 in dormant bud by actual count. Elberta, 272 000 one year from bud. Varieties true—no disease. All in land never before in peach trees.

Pear Trees
100,000 Kieffer, the best commercial sort. Full assortment of other varieties. All grown on well branched, whole roots, imported French stocks. Will cost you no more than others charge for trees grown on Japan stocks and in our opinion are worth double.

Cherry Trees
110,000 in stock—mostly Richmond, Montmorency, Wragg, etc. Just the sizes you want.

Apple Trees
584,000. Others may grow more apple trees, but none grow any better quality. Some and see them, or order and the trees will show.

Plum Trees
30,000, on Plum stocks—high grade. Best sorts for general planting.

Writ for our new Condensed Wholesale and Retail List.
We pay the freight at prices in this list.

ACME Pulverizing Harrow
Clod Crusher and Leveler
SENT ON TRIAL
To bereturned at my expense if not satisfactory.
SIZES 3 TO 13 1-2 FEET.
Agents Wanted
The best pulverizer—cheapest Riding Harrow on earth. We also make walking Acmes. The Acme crushes, cuts, pulverizes, turns and levels all soils for all purposes. Made entirely of cast steel and wrought iron—indestructible.
Catalog and Booklet, "*An Ideal Harrow*," by Henry Stewart, mailed free.
I deliver free on board at New York, Chicago, Columbus, Louisville, K nsas City, Minneapolis, San Francisco, etc.
Address DUANE H. NASH, SOLE MANUFACTURER - MILLINGTON, NEW JERSEY.
PLEASE MENTION THIS PAPER.

A POINTER IN NURSERY STOCK
People who bought trees of us over a quarter of a century ago are patrons and fast friends to day. We have the same customers year after year. That is unimpeachable evidence of the superior quality of
Sweet's Genesee Valley Trees.
Our nurseries now present the finest showing of fruit and ornamental trees, shrubs and vines ever grown. All smooth, hardy, vigorous growing, disease free stock. Of the fruit trees we have in finest condition for spring planting all the apples, plums, proved standard varieties of apples, cherries, etc. Our showing of Standard Pears this year is nowhere approached. Stock more carefully budded, better rooted, smoother or thrittier is an impossibility. Get our latest free catalogue for the best nursery stock of any kind grown.
The Geo. A. Sweet Nursery Co.,
Box 1745, Dansville, N. Y.
Copyright applied for.

THE SUDDUTH PEAR
Has stood an Eighty Years' Test. Absolutely Blight Proof. Hardy as an Oak. An Annual Bearer. Attains Enormous Size and Age. Fruit of Superior Quality. Complete Booklet Free on Application.
We Carry Complete Line General Nursery Stock
Write for our Price List of All Varieties of Fruit and Ornamental Trees, Plants, Shrubs, Vines, Roses, Bulbs and Forest Trees, Seedlings. Mailed free. Please mention the Western Fruit-Grower when writing.
AUGUSTINE & CO., GENERAL NURSERYMEN NORMAL, ILL.

TO OUR READERS.

The Fruit-Grower takes occasion at this time to wish all its readers a most prosperous New Year and a very happy Christmas. The past season was a good one for all of them, we hope, yet we wish them much more prosperity in the future. The Fruit-Grower believes its readers are the best class of people on earth, for they have manifested their kindness to this paper in so many ways. Shall we tell you next month how the fruit-growers of the West have helped to build up this publication? Well, we will, in our big January number, for we want all our readers to know how important a part they have taken in this work.

Just one other matter: If you can possibly send us a block of new subscribers, do it at once. When you see our big anniversary number next month you will want all your friends to have one, but it will be necessary to send their subscriptions in early. There will be a few extra copies of the January number printed, but not a great many, and you should send in all the subscriptions you can at once. Remember, that if you send five at one time, we accept the five, if all are new subscribers, for $1. We know there is scarcely a reader of this paper who cannot send at least five new subscribers, and we hope to hear from a great many of them before our anniversary number is issued.

And if your own subscription has expired, renew at once. Fifty cents is a small matter to you, but when you consider that we have several thousand readers whose subscriptions expire during the next three months, you will realize how important the sum is to us. You want the Fruit-Grower during the coming year; it will be better than ever, with more fruit news, better reports concerning fruit crops, prices, etc., and is indispensable. Then why not renew at once, and have the matter out of the way? If you like, send $1 for three years' subscription, in advance.

And don't forget our special premium of The Horticulturists' Rule Book. It is a fine thing, and you need it. If you pay your own subscription for a year in advance, remember you can get this special paper-bound edition of The Rule Book for 25 cents. It is a bargain; you will say so when you receive the book.

Readers of the Western Fruit Grower are urged to send in names of persons in their neighborhood who are interested in fruit culture. To these persons we will send sample copies of the Fruit-Grower, and it will be an easy matter to get most of the persons to subscribe after they have examined the paper. Our readers will confer a favor on us and on their neighbors if they will do this.

We are counting on the active, earnest support of all our readers, and know they will not disappoint us.

Our January Number

The January issue of the Western Fruit-Grower will be our annual anniversary number, and will surpass any of the previous issues—and that means that it will be the finest farm paper ever published.

We wish to call special attention to the January number at this time particularly for the benefit of any persons who receive a copy of this number, and who are not regular subscribers. We think this issue of the Fruit-Grower is a pretty good paper, but it is not nearly so good as next month's issue will be.

The January number will be at least twice the size of this issue, full of live horticultural matter. There will be special articles by the best horticultural authorities in America, among those who will contribute being Prof. L. H. Bailey of New York, Dr. J. C. Whitten of Missouri, Prof. J. C. Blair of Illinois, Prof. F. A. Waugh of Massachusetts (the letter contributing a most interesting illustrated article on the variations in Ben Davis apples, where grown in different sections of the country); Luther Burbank of California, J. H. Hale of Connecticut and Georgia and others.

F. P. Vergon of Ohio will tell how he manages his apple orchard without cultivation, using mulch instead.

Geo. H. Patch of Wisconsin will tell of his experiments with irrigation the past season, illustrated.

Henry Wild of Missouri will contribute an illustrated article on "Nut Culture in Missouri."

F. W. Taylor of the St. Louis World's Fair will tell the Fruit-Grower readers about the preparations which will be made for fruit exhibits at the great exposition.

The meetings of the Illinois, Kansas, Iowa, Ohio State Horticultural Societies will be reported fully by Fruit-Grower representatives, as will the meeting of the Southwestern Iowa District Society. These reports will be complete, giving the principal points covered by the different papers and the discussions thereon.

Our regular departments will be up to date—small fruits by Wm. S. Crawford, general horticulture by Major Holsinger and poultry by W. P. Laird.

A special feature will be made of the announcements of the new creations offered by the different seedsmen and nurserymen. These firms will report for benefit of Fruit-Grower readers the various new varieties they offer this season for the first time, and the claims of the new varieties have for preferment over the older sorts.

There will be the usual quantity of general horticultural miscellany, with answers to correspondents concerning horticultural matters, etc. Particular attention will be paid to seasonable work in the way of spraying orchards, etc., the preliminary work of which will soon begin.

And, finally, the advertisements in this January number will be very attractive. Everything will be new and the different advertisers will have something special for our readers. And we would call special attention to these advertisements They will be one of the features of this anniversary number, and a finer lot were never published in any one farm paper before. They will be from the leaders in their respective lines, and will be really interesting and profitable.

No one who is at all interested in horticulture in any of its branches can afford to miss the January number. If you are not a subscriber, send your subscription today, for the January number alone will be worth the price paid for a year's subscription.

And to advertisers we would say that the January number will be the best farm paper of the year, from the standpoint of the advertiser, as well as from the standpoint of the reader. Copy should be sent in early, for it will take time to get them good positions.

Are You a Subscriber ?

A number of sample copies of this issue of the Western Fruit-Grower have been sent out to persons in different parts of the country this month, in the hope that many of them will subscribe.

Now, do not want to use space telling these new-found friends what a good paper the Western Fruit-Grower is—we will let our publication speak for itself.

But we will make this proposition:

We ask every person who receives a sample copy of this issue to subscribe. Subscription, 50 cents per year, or where five new names are sent in at one time, each name will receive the paper one year, all for $1.

If any new subscriber does not admit that the January number alone is worth the price of a year's subscription, we will refund his money.

Can anything be fairer? We know every one interested in horticulture will like our paper, and we know, too, that the special number to be issued next month is worth the price of an entire year's subscription.

Send in your subscriptions today. Don't delay, or you may miss the big number next month, for the supply will be limited.

TO OUR ADVERTISERS.

The Western Fruit-Grower wishes all its readers a very prosperous season's business, prospects for which were never better. We shall be glad to co-operate with any or all of them to make their advertising more effective.

As one step to this end, we will say that every advertisement in the Fruit-Grower, except those for which electrotypes have been furnished by advertisers, will be reset in new type for our anniversary number, issued January 15. We will try to make every ad very attractive, and see that each makes the best possible appearance.

But one thing we would impress on our advertisers is this: If you desire to change your ad in any way, to increase the space or alter the wording, **SEND YOUR COPY AT ONCE.** The January number will consist of at least 48 pages, and the first forms will have to go to press early—shortly after the first of the year. If changes for ads are not sent by that date, we shall take it for granted the old copy was satisfactory, and it will be used in the anniversary number. But we believe many of the ads can be profitably changed, either in wording or space, and hope to hear from a number who want larger space in the special issue.

New advertisements can be accepted until January 10, but better position can be given if copy is received earlier—the earlier the better.

THE FRUIT-GROWER.

Kansas Horticultural Society.

The annual meeting of the Kansas State Horticultural Society will be held at the state house in Topeka, December 29 to 31, 1902. Matters of importance will come up for discussion, and a good program has been prepared. The railroads will make the usual holiday rates, one fare for round trip.

The following is the program, omitting such items as reports of officers, etc. The first session will be held at 1:30 p. m., Monday, Dec. 29:

"Orchard Treatment," James Sharp, Morris county; E. E. Yaggy, Reno county.

"Bitter Rot in Apples," John H. Stinson, Mountain Grove, Mo.

"Replanting Fruit Trees," H. L. Ferris, Osage City.

"Orchard Success in Kansas," Earl Miller, Shawnee county.

"Better Legislation for Bird Protection," D. E. Lantz, Riley county.

"Report on Entomology," E. A. Popenoe, Kansas State Agricultural College.

"Pears and Pear Crulture," T. W. Harrison, Shawnee county.

"Handling Fruits," A. F. Yaggy, Reno county; Geo. A. Blair, Sumner county; Geo. C. Richardson, Leavenworth county.

"Cherry and Plum," J. J. Alexander, Norton county.

"Peaches," Peter Voorhees, Douglas county.

"Stone Fruits," Geo. Holsinger, Wyandotte county; C. A. Chandler, Shaw's Garden, St. Louis, Mo.

"Handling Stone Fruits," Miss E. Geyer, Leavenworth county.

"Taste as Pertaining to Fruits," B. F. Smith, Lawrence.

"Small Fruits," M. Chandler, Wyandotte county; Clarence Holsinger, Wyandotte county

"Handling Small Fruits," F. W. Dixon, Jackson county.

"New Fruits and Nomenclature," William Cutter, Geary county.

"Home Adornment," Mrs. C. W. Bullard, Leavenworth county; Mrs. Lizzie K. Maffet, Douglas county.

"Some Present Day Theories of Plant Breeding," H. F. Roberts, Kansas State Agricultural College.

"Plant Breeding," Phillip Lux, Shawnee county.

"Romance of Horticulture," (with stereopticon), S. J. Hunter, Kansas State University.

"Best Horticultural Implements," O. T. Whitney, Shawnee county; Edwin Snyder, Jefferson county.

"Irrigating for Fruit," H. E. Goodell, Shawnee county.

"Commercial Gardening," A. Chandler, Randolph, Mo.

"Marketing Fruit," B. F. Smith, Douglas county; F. L. Kenoyer, Montgomery county; Albert Dickens, Kansas State Agricultural College.

"Keeping Fruits," Francis Goble, Wyandotte county.

One hundred dollars has been set apart for awards on exhibits of fruit. The exhibition is not competitive, and every exhibit of merit will receive an award. Uniformity will require that five (no more, no less) specimens shall constitute a plate of apples, pears, peaches, or quinces; nine specimens of crabs and plums; grapes, one pound. Several plates of same variety may be exhibited by same person.

A Trip Through the Ozarks.

At the meeting of the American Apple Growers' Congress at St. Louis last month, Mr. Bryan Snyder, traffic manager of the 'Frisco System, extended an invitation to the members of the congress, one and all, to become guests of the railway company on a trip through the Ozark country. The invitation was accepted, with thanks, and Thursday morning, Nov. 20, two Pullman cars were attached to the morning train out of St. Louis, and about seventy fruit-growers began the trip. The 'Frisco management had a plentiful supply of lemonade, seltzer water, cigars, etc., on board, and after the party had left St. Louis a representative of the railway company informed the members of the party that if they had any money in their pockets it was all counterfeit, for the company would see that everything needful was provided. Telegrams were sent ahead to arrange for the meals for the party, and the trip was a most delightful one. The first day closed with the party at Springfield, where a large cold storage plant was inspected and the party stopped for the night. Next day the party left with special engine for Arkansas, where stops were made at principal points, the trip extending as far as Tahlequah, Indian Territory.

The following resolution was unanimously adopted by the members of the party:

"Whereas, The St. Louis and San Francisco system and the Ozark & Cherokee Central have so gratuitously favored the members of the American Apple Growers' Congress with such an extensive, pleasant and profitable excursion through the apple districts along their respective roads in Missouri, Arkansas and Indian Territory;

"Whereas, Through these courtesies the members of the Congress have been enabled to see the great possibilities for commercial apple growing in the Ozark region; be it

"Resolved, That we hereby show our hearty appreciation by a unanimous vote of thanks to the passenger traffict manager of the 'Frisco System, Bryan Snyder, at whose suggestion the trip was made; to the St. Louis city passenger and ticket agent of the 'Frisco system, F. J. Deicke, who personally conducted the excursion; to the president of the Ozark Route, Mr. E. E. Hughes, and to the general agent, Percy Talbot, for extending the courtesies of their line, and to all other officials who have contributed to the success of the excursion."

The 'Frisco System deserves great credit for its kindness in inviting the fruit-growers to make this trip. And it also deserves a compliment upon the shrewdness of its management in appreciating the opportunity it had. This system, which is rapidly becoming one of the greatest in the country, traverses the Ozark section from end to end. Its prosperity is to a great extent dependent upon the success of the fruit growers in its territory, and the management knows and appreciates this fact. The 'Frisco is ever ready to make rates to horticultural meetings along its line, and complaints from fruit men are heard and investigated. Some railway systems are slow to appreciate the importance of the fruit industry, but not the 'Frisco. Compare the action of this company in regard to rate for the meeting of the Missouri Horticultural Society at Springfield this week, for instance, with the action of the Rock Island system at the Princeton meeting several years ago. The latter company would not consider any kind of a proposal, not even making a rate of one and one-third for round trip. Yet the 'Frisco, without asking how many would attend, announced a rate of one fare for the round trip—and the rate was made good, too. We don't know that the 'Frisco and the Rock Island compete very much for business, but if they do, we are not in doubt as to which fruit-growers should favor with their support in every way possible.

REPAIRS
For Clark's Cutaway Orchard HARROWS
and his other tools. (The best tool for orchards made). Circulars and prices for the asking.
E. G. MENDENHALL, Gen'l Agent, Kinmundy, Illinois.

STRAWBERRY PLANTS
We grow them on new ground that never had any other crop grown on it, consequently they are free from disease, are vigorous, well-rooted and sure to please. Send for circular.
JOHN LIGHTFOOT. Sherman Heights, Tenn.

STRAWBERRY PLANTS
I have a fine lot of choice strawberry plants. All the best varieties. Write for prices. W. S. TODD, Greenwood, Del.

Strawberry Plants
Fancy Fruit, Selected Plants, grown on improved methods. Proper pollination. Five weeks marketing season. Yield nearly $400.00 per acre. Cheap plants are no comparison. Price, freight or express prepaid, $1.50 per 100; $10.00 per 1,000.
E. MOHLER, Plattsburg, Mo.

BILLINGS NURSERY
Billings, Mo., 20 miles southwest of Springfield; has a general line of all kinds of Nursery Stock. Apples a specialty. I have 20,000 Payne Late Keeper, 1 year; 50,000 Soft Maple. I have a fine stock of 2-year Apple for the fall trade. My stock is true to name.
G. W. TRIBBLE, Prop., Billings, Mo.

Baldwin Cherry Trees
The Largest, Sweetest and Earliest Morello. The Commercial Cherry of the Twentieth Century. 20,000 Genuine Baldwin Trees to offer for Fall and Spring. 200,000 Apple, Peach, Plum, Pear, etc., at wholesale. Scions and Buds from 10,000 fruiting trees in orchards.
S. J. BALDWIN, Nurseryman

GENEVA NURSERIES
WHOLESALE ONLY.
A full line of Nursery Stock.
Full Line of Forest Tree Seedlings
a specialty. Correspondence invited.
YOUNGERS & COMPANS
GENEVA, NEB.

Choice Nursery Stock
Carefully grown and carefully dug. Fifty varieties of Apple, good assortment of Pear and Peach. Send for list.
L. F. DINTELMANN
BELLEVLLE, ILL.

Money Rolls to Agents
that sell nursery stock from the famous
GREELEY COLORADO NURSERIES,
whose stock is better adapted to all localities than any others. Agents wanted in every county. Write at once for terms and territory, giving reference.

STRAWBERRY CULTURE By M. Crawford
The best of the knowledge gained in nearly 50 years' experience boiled down into 60 pages. A capital compendium of up-to-date practice. —AMERICAN GARDENING.
It will pay fruit growers to send for this pamphlet.—FARMER'S FRUIT FARMER.
PRICE TEN CENTS.
M CRAWFORD CO., Box 1004 Cayahoga Falls, Ohio

VINCENNES NURSERIES
W .C. REED, Prop., Vincennes, Ind.
We offer the following car lots for fall, 1902: Apple, 2 and 3 years; Cherry, 1 and 2 years; Peach, 1 year. Also good assortment of Standard and Dwarf Pear, Plum, Snyder and Early Harvest B. B. R. C. Plants, Carolina Poplar, Elm, Soft and Cut Leaved Maples, Shrubs, etc.

Nuts for Profit 158 pages; 60 illustrations; price 50c; testimonials free; Japan walnut seed, by mail, 25c per dozen; $1 per 100. J. R. PARRY, ORLANDO, FLA.

Agents Wanted To sell Nursery Stock. We pay 40 per cent to good competent men. HART PIONEER NURSERIES, Ft. Scott, Kansas.

Raw Furs I pay highest prices. Write for price list. J. I. Gleed, East Aurora, N.Y.

AGENTS WANTED Liberal terms. Plattsburg Nursery, Plattsburg, Mo.

(Continued from Page 7.)

D. Maxwell of St. Joseph, who is an earnest advocate of this method. He said he had often been called a crank on this subject, but he believes the dust process will soon take the place of liquid. The results of spraying are never questioned by the grower who uses it, but simply what is best and the more economical process to use. He had used dust three years and his expectations were fully realized; he believed his success due to spray. He declared the time is coming when packers will not want to buy stuff that has not been sprayed. It is now one of the first questions asked by them. Those who have tried both ways pronounce dust far superior. Everything used in liquid can be used in dust. Lime is a good fungicide in itself; water has no virtue in spray. Dust goes through all parts of the air and reaches every spot; liquid will not. Those who use the liquid know the danger of burning the foliage and making the fruit rusty. They do not have this trouble when using dust; but the lime will assist in making foliage good and sticks on better than in the liquid. We sprayed eight times and didn't find a single worm. What few we found when we picked fruit had gone in after we stopped spraying, not over 5 per cent of the fruit being wormy.

D. A. Robnett will use dust spray hereafter. Liquid gave good results, but cost more for material and to apply.

Mr. Kiser said the machines he offered for using dust spray regulate the quantity you wish to use. One man and a boy can do more in one morning with dust than six men can all day with liquid. For large trees, use a large machine, and a small machine for small trees and plants. Dust covers both sides of the leaves and catches insects that may be flying in the air.

N. F. Murray said he had used liquid many years, and was not fully satisfied with it. Last year he used dust and was well pleased. He finds dust will adhere very well to both foliage and fruit, even after a rain. He will use dust hereafter.

Mr. Maxwell said the best condition to apply dust spray is when the atmosphere is damp and still; but it may be used at any time. It will settle on foliage and stay there best in early morning. As a rule, spray before buds open, and then just as they drop. The next week spray twice, and once a week thereafter. The last spraying was on the last day of July. The cost was about 2½ cents per tree, for the eight sprayings given, for material. Liquid spray often fails by not being thorough. I believe that our eight sprayings were not enough, and hereafter am going to spray until the middle of August.

Mr. Moore of West Virginia had saved plums and peaches from brown rot by the use of dust spray.

Other evidence was given in favor of both sprays.

"Packing and Marketing" was the subject of a paper by C. H. Williamson, ex-president of the Apple Shippers' Association of Quincy, Ill. He said that in packing don't face too good; use apples of uniform size, bright, clean and healthy, and fill barrel with about the same kind of apples. Use standard three-bushel barrel. Shake barrel well as each basketful is added, and when full shake down well; can hardly shake too much; then don't press too much. After thoroughly shaking down, fruit should be about one inch above top of barrel. Use hammer as little as possible on the head.

Marketing—This will often pay the grower to do for himself, but it is very important to pack right and store where you can see after the fruit. If you can't watch markets and buyers, you had better sell to one who can, as marketing is a business by itself.

We must widen the demand for our fruit by tempting the consumer with a better quality. To do this, adopt better methods in orchard spraying, fertilizing, cultivating and packing.

The true enemy to wider consumption and better markets is the farmer himself who would push fruit of doubtful quality on the market. Trash is a check on consumption. The consumer may buy one barrel, but if trash, he will buy no more that year, while had the first barrel been of good quality, he would have bought several more. Leave trash in the local market, to be worked up in evaporating, apple butter, etc., and send out only really good stuff, once and always.

Not more orchards, but better ones, is wanted. I would caution the western apple grower to lay in material for barrels as soon as he can make any estimate of crop. While he may not pack, himself, he should provide barrels. He said he was sure many crops were lost last packing season on account of failure to get barrels. The box is a good package under certain conditions of market. Use only for fine Jonathans or Grimes; but he believed the barrel will continue to be the favorite package for some time

Mr. Lawton of Arkansas said he preferred a slatted rolling table best for sorting.

Mr. Tippin, speaking from several years experience, said he was convinced the rolling table was much the best for packing. He believed the box was going to push its way into the market and force better packing. Growers must learn to pack when ready and not wait for a certain date. He thought it would be to the interest of every grower to learn to properly pack their own fruit as soon as they can do it right. They can't afford to store a bad apple.

A. J. Davis favored Missouri River bluffs for orchards. For ages the river has been bearing down sand and soil from the mountains, and we now find here a deep sandy loam that will produce fine fruit. Trees on steep land are doing well here. Favored as to transportation facilities.

"Canning Fruits," by T. W. Wade, was ably handled, giving the many benefits that accrued in this saving of products of nature for future use. We need canning factory in local territory for best results.

"Too Much or Too Little Cultivation" was the subject led by A. T. Nelson of Lebanon, who said that the kind we wanted was that which would produce good, healthy trees. The ground should be kept pulverized. Proper care of the orchard will help color and prevent fruit from falling. In young orchards plant corn, first putting five rows between trees; dropping out a row of corn as fast as the trees need the space. Corn helps to shelter the trees, especially if stalks are left standing during the winter. I don't think you can cultivate too much. Many orchards now bearing would have made better and larger crops if they had had proper care. Clean cultivation, allowing nothing to grow, is a good method after the trees are bearing.

Discussion—Mr. Shank: Would want some mulch after trees get to bearing. Sow stock peas broadcast and keep away from close up to trees. In the fall sow rye, and in the spring, about April 1st, sow clover. Just before the rye heads, mow and let fall, protecting clover and mulching trees.

Others found that where young trees failed in being cultivated they failed to grow. Often fail to get around trees when cultivating. One would cultivate till the middle of June, then sow buckwheat and turn under in the fall. He would not take off any crop; rather put back something that has been exhausted by tree growth. Disc shallow and follow with drag are the best ways to conserve moisture. Cow peas and wheat, hogged down, is liked by several. Many stop cultivation just when most needed. You will need to cultivate as long as you expect to get healthy fruit.

"Some Neglected Spots," by Mrs. M. C. Smith, Springfield, was a plea for beautifying the waste places all about us. It is said the rush to the city is about stopped and the tide beginning to flow back to rural life. It is time to think of causes for our boys and girls rushing to the city. More beautiful home surroundings have much to do with retaining interest in the home. She spoke especially of the neglected yards, with special reference to the back yards of many farm homes. It does not take much time to have things different. Cleanliness, keeping tools in proper place and a few flowers will do wonders. A few trees to shade the back door, or an arbor covered with grapes. One of the easiest flowers with which to make a glow of color with little care are petunias. Beautiful vines are in reach of everybody. Nasturtiums require little care and most any soil. Hollyhocks and Golden Glow may be used for hiding the back fence. These are mere suggestions that can be enlarged to suit the taste. District school yards, that are usually a deso-

Continued on page 14.

Commercial Orchard
MISSING LINK APPLE CO.
NURSERYMEN CLAYTON, ILL

Successful commercial orcharding depends upon the following factors:
First—Trees must be true to name.
Second—Trees must be grown on Nature's plans.
Third—Trees must be properly dug and packed, so as not to lose their vitality.
Fourth—Varieties must be adapted to soil and climate before congenial environments exist.
Fifth—It is just as essential to have thoroughbred or pedigreed apple trees as it is seed corn, wheat, hogs, cattle or horses.
Sixth—There must be a mutual consideration of each other's interests between nurseryman and planter.
Thirty-three years of commercial orcharding and twenty-two years of nursery growing has demonstrated to us what the tree planter needs for both commercial and family use. Our trees embrace every point named above. We propagate all the leading varieties from bearing trees of our third generation of reselected stock showing higher types of fruit. It has taken us over thirty years' careful selection and repropagation to reach this point. Every scion or bud used by us is cut direct from bearing trees. You are especially invited to call and see our stock and examine our bearing trees.
Remember the Missing Link Apple fills the missing link period between the old and new crops, thus giving you apples in the cellar until the new crop ripens.
Agents wanted in every locality. Call on or write us for prices.
Yours for mutual pleasant and profitable business,

A NEW PEACH
The Hillman, that ripens before Elberta; Seedling of Chinese Cling; a good shipper and a good seller, that deserves a place in every commercial orchard; a perfect freestone and a handsome peach, that should be in every orchard; fine flavored and firm flesh; ripens to the seed. Only a few trees to offer. Write today for description and prices. Address
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You to know we are headquarters for Nut Trees of all kinds—Grafted Walnuts, Chestnuts and Pecans, Almonds, Hazelnuts, Black Walnuts, Butternuts. Send 4 cents for descriptive catalogue.
AMERICAN PLANT & SEED CO., Sta. B. Nashville, Tenn.

SPRAY PUMPS
Save money by buying one of ours. They will do as much work. Being all brass are lighter to handle and are more durable, will generate a higher pressure, thereby making them the easiest pump to operate on the market. Write for catalogue and get treatise on spraying free. Agents wanted. J. F. GAYLORD, successor to P. C. Lewis Mfg. Co., Catskill, N. Y.

Do you know
that the "Rogers" is the earliest dewberry in the United States? Brought $10.00 per crate in Dallas, Tex., April 15, 1902. The "Rogers" is the earliest, best shipper, heavy bearer, fine quality, and the finest berry procurable for the home garden or commercial field.
Try a few plants, and be convinced that the "Rogers" is what you have been looking for.
Strong, healthy plants, securely packed, 75c per 100, $6 per 1,000, f. o. b. shipping point.
Special rates on large orders. Terms, strictly cash.
JAMES W. HAMLETT, Alvin, Tex.

WANTED! WANTED!
Two good men to work on fruit farm; yearly employment. Address
C. B. GREEN, Sedalia, Mo.

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The Modern Farmer.....50c
Vick's Family Magazine ...50c
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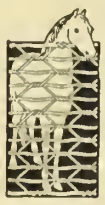
All for 85c. Address
MODERN FARMER, St. Joseph, Mo.

60 VARIETIES STRAWBERRY PLANTS. The best and cheapest. I furnish better plants for less money than any one in the business. Send for 1903 catalogue now. H. W. HENRY, LaPorte, Indiana. 50 miles east of Chicago.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Machine sent on Trial. Plain and Barbed Wire at Wholesale Prices. Catalogue Free.
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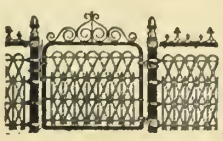
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Box 413 Winchester, Ind.

Strawberry Gossip

Last spring I made some mention of strawberries ripening in the fall, and suggested that growers should watch the weather conditions with a view to learning, if possible, what causes plants to bloom and bear in the fall. Mention was made of the experiences of Messrs. R. D. Mason & Son, of Fond du Lac county, Wisconsin, in 1900. Recently I received two letters from Mr. S. E. Mason, who, since the death of his highly respected father, last summer, has conducted the business in his own name, telling even more remarkable experiences this fall. On October 27 he wrote as follows: "We are again having strawberries to market in October. In connection with a neighbor, I have shipped, to date, over 150 quarts of fine berries to Milwaukee and Chicago, netting us from 30 to 35 cents a quart, and we have sold locally nearly as many more. Other growers have had as many, perhaps, so there has been marketed from here 500 or 600 quarts this fall, and more to follow; mostly from little garden patches, in the aggregate not over two acres, if as much. We picked twelve quarts of very fine berries Saturday last, and will have several more pickings if it does not freeze up too soon. The day McKinley was elected in 1900 I picked six quarts, and hope to do as well this year. Whether this experience is unique or how unusual it is, we do not know, but we think it quite a novelty. The variety is the Enhance. I doubt if the so-called ever-bearing varieties will do as well, although I am without experience with them. The essentials seem to be as follows:

"First—Variety, Enhance; no other kind bears here in the fall appreciably.

"Second—It must be an old bed; one that has fruited at least once. As soon as possible after the first crop is gathered, the bed must be cleaned out thoroughly, leaving the old plants and giving them a chance to recuperate as soon as possible. Then, if suitable weather comes on, warm with timely rains, an abundant crop of blossoms will appear in August and September, a large portion of which will be frozen, but enough escaping to make an appreciable showing. That has been our experience for two years, and I think it will continue, weather alone being the uncertain part of it.

"We have had several frosts severe enough to freeze ice like window-glass in exposed shallow dishes, but still berries came on. Surprise and incredulity are expressed by strangers concerning strawberries from Wisconsin in October, but it is a fact nevertheless."

On November 30 Mr. Mason wrote: "I find on inquiry that my estimate of the October strawberry crop was altogether too small. Instead of 500 or 600 quarts grown here, it was 1,200 or 1,500 quarts, and all from small garden patches, not over two acres in the aggregate. They were picked from the last week in September until Thanksgiving day; and, inasmuch as I have often, as a boy, skated on ice a foot thick on Thanksgiving, I think the experience is one of a lifetime and will seldom, if ever, be duplicated.

"They were shipped as far east as New York state and as far west as Kansas, arriving in good condition. It certainly is gratifying to sell berries in considerable quantity for from 30 to 40 cents per quart in October, as compared with 6 to 8 cents in June, to say nothing of having them on the table two or three times a week for five or six weeks in the fall. There is no science about raising them; at least all the science is in the variety; and, while there is no certainty about having them, I really think that as long as we keep the Enhance we shall have berries in considerable quantity in the fall every other year at least. They do this, too, without materially affecting the succeeding crop."

This experience is remarkable. How much of it is due to local conditions of soil and climate and to what extent fall berries could be grown in other parts of the country by supplying the essentials Mr. Mason lays down, I am unable to say. In October we received a letter from a correspondent in Texas, who said that a bed he had set last fall had borne very poorly the past season, and that at the time of writing it was full of blossoms and green berries. Some years ago Mr. Peabody of Georgia used to grow berries out of season on old plants by merely furnishing water. If while they were blossoming he applied nitrogenous manure, they at once ceased to blossom and began to run. From these instances and those cited by Mr. Mason this year and two years ago, I should judge that old plants are certainly an essential. They have already built themselves up and have stored in their crowns the material of which fruit may be made under the proper conditions. If they bear a heavy crop in June, they exhaust this material to a large extent, and are not as likely to bear in the fall as if drouth or some other cause had prevented them from bearing fully in June. In order to produce fruit, they need water, potash and phosphoric acid. The water must be supplied either naturally or artificially. There may be a sufficient supply of the other essentials in themselves or in the ground, or these may be supplied. An abundance of nitrogen, on the other hand, will cause them to make a growth of leaves and runners. I cannot say that we should have a fall crop by preventing excessive fruiting in the regular season by cutting off blossoms, then supplying plenty of water and perhaps some potash and phosphoric acid, but it certainly looks to me as if this would be the course most likely to bring about such results.

Nearly every year we get a valuable report on varieties from Mr. Mason. I quote what he wrote us recently, as follows:

"My report on Senator Dunlap last year was favorable on the whole, but with qualifications. This year it is unqualifiedly favorable. I find it a very hardy and strong grower, none better, of good fair size, larger than Warfield this year, very productive, fair quality both for shipping and eating. We planted rather sparingly of it last spring, not being certain of it, but I should judge we should not go amiss to plant it by the acre. It is very similar to the Warfield in appearance, and being perfect blossom, may be destined to take the place of that fine variety.

"Sample and Empress are similar in color at least to the Clyde, but inferior to it in productiveness at least, but deserve further trial. Bennett, while productive, is too feeble in growth here and will be discarded. Brandywine, while fine in plant and producing some very fine berries, does not produce one-fourth as much as Enhance and cannot be retained. The much touted Rough Rider is nearly as feeble as Bennett in growth, is not productive and is undersized here, is of very poor quality, but would be a splendid shipper if there were enough to ship. Worthless here. Potted and layer plants of the new President strawberry were received in August and are looking well now, but they had rust spots on the leaves, which is suspicious.

"After growing the Warfield and Parker Earle ever since they were introduced with very good success, I have at last discarded them, the former for dwindling in size and the latter for growing feebleness of the plant. Main crop hereafter, Enhance and Dunlap probably, the former for strength and hardiness of plant, enormous productiveness, large size, splendid shipper and tendency to bear in fall, offsetting poor quality, rough and homely appearance and white tip."

Much has been written both far and against mixed farming. I have heard the argument used against it that it is like a man's betting on one side of a question, and then, to avoid loss, betting equally on the other side. The argument is not sound. In such a case a man is bound to lose on one side when he wins on the other. In mixed farming there is no certainty that he will lose on any line, but there is almost absolute certainty that he will not lose on all. Every prudent man carries insurance of some sort. All insurance is based on the law of average. Of a certain number of buildings, about a certain number will burn in one year. About a certain number of men of a given age will die in any year out of every thousand men of that age. From year to year the variations from the average are comparatively slight. The premiums collected on the buildings that do not burn and the men that do not die pay the losses and some more. An average cannot be secured on one risk. A fire insurance company that would write all its business in one city block would be wiped out of existence by a conflagration that would consume that block, but with its risks distributed, there is practically no possibility that all, or any considerable part of them, will burn at one time, or at all.

A man who grows but one crop places himself much in the position of a fire insurance company with its risks all subject to one fire. He is taking chances of an almost total loss by one frost, one drouth, one flood, or any other calamity that may affect his whole crop. His only chance of getting an average is on a number of seasons. But many men have not the capital to carry them through the lean years till the year of plenty shall come again. Their average must be secured through a diversity of crops, all of which no one calamity will affect. I do not believe in multiplicity of occupations. The man who grows a little of everything generally has not enough of any one thing to make it worth his while to grow it right, and too much of his time is taken up in changing from one thing to another, and too much of his money is required for implements and tools for so many lines. But it appears to me that the man who ties up to one crop is assuming an unnecessary hazard and one which he cannot safely carry unless he has large capital. Suppose a man is an exclusive strawberry grower. In the spring he is rushed to death to get his ground prepared and his planting done. In June he needs all the help in the neighborhood to gather his crop, unless the frost, or drouth, or flood has already harvested it for him. During the summer he is very busy with his growing plants.

The Lee's Summit Star Nurseries

RAMBLER ROSES

Let them cover the clothes line posts, climb the porches, fences and make a thing of beauty of unsightly corners. The whole family of Rambler Roses is worthy, interesting and beautiful. The CRIMSON RAMBLER is the rose for everybody. No Home should be without one and the more the merrier. Perfectly hardy, vigorous and—but what's the use, all have seen and admired it and we have only to remind you at the proper time—NOW! We have a fine lot of strong two-year-old plants, field grown at 25 cents. The DOROTHY PERKINS is our last addition to our collection of Ramblers and it is simply grand, all that has been said of it and more. We have them, too, and will sell a few strong two-year field grown plants at a special price of 40 cents, if you mention the Western Fruit-Grower.

Our Blue Catalogue will tell you more about Rambler Roses and of other items that we grow. It is your fault if you are without a copy.

Plant Cherry Trees Now. We tell why and how in a four-page circular.

The Dutch Bulbs are here and we are planting our beds. Let us send you also a copy of the Dutch Bulbs that you may know how to plant them and then we will sell you the Bulbs.

When this reaches you we will be shipping trees every way and if you say the word, we will ship some your way and then you will know for yourself.

M. Butterfield & Son

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A pretty good sprayer is an abomination, for it will not save, as you fondly hoped, a percentage of your crop.

With a SPRAMOTOR a farmer can improve his Fruit Crop 80 per cent; rid his stock of the annoyance of Horn Fly, thereby increasing the butter yield one-third. He can destroy the Wild Mustard (Charlock) in the growing grain without injuring the crop, and the improvement in the grain yield will more than repay the cost, and finally he can paint his buildings with SPRAMOTOR COLD WATER PAINT.

Full particulars, and 80-paged Copyrighted Treatise to all who mention this paper.

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NURSERYMEN'S FRUIT AND ORNAMENTAL PLATES

An experience of over 30 years and our unequaled facilities have made our Plates leaders.

They are used by the leading nurserymen and agents in the United States and Canada. A trial order will convince you of their superiority. Send for catalogue and prices.

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ROCHESTER, N. Y.

$100 Premiums on Corn

$30.000 in gold on first prizes.
See our 1903 Catalogue.

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For information as to Fruit and Trucking Lands, Grazing Lands, Soil and Climate in Virginia, North and South Carolina, Georgia, Alabama and Florida, along the

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Write to WILBUR McCOY, Agricultural and Immigration Agent, Jacksonville, Fla.

450,000 TREES

200 varieties. Also Grapes, Small Fruits, etc. Best rooted stock. Genuine, cheap. 2 sample currants mailed for 10c. Desc. price list free. LEWIS ROESCH, Fredonia, N. Y.

SPRAY PUMPS

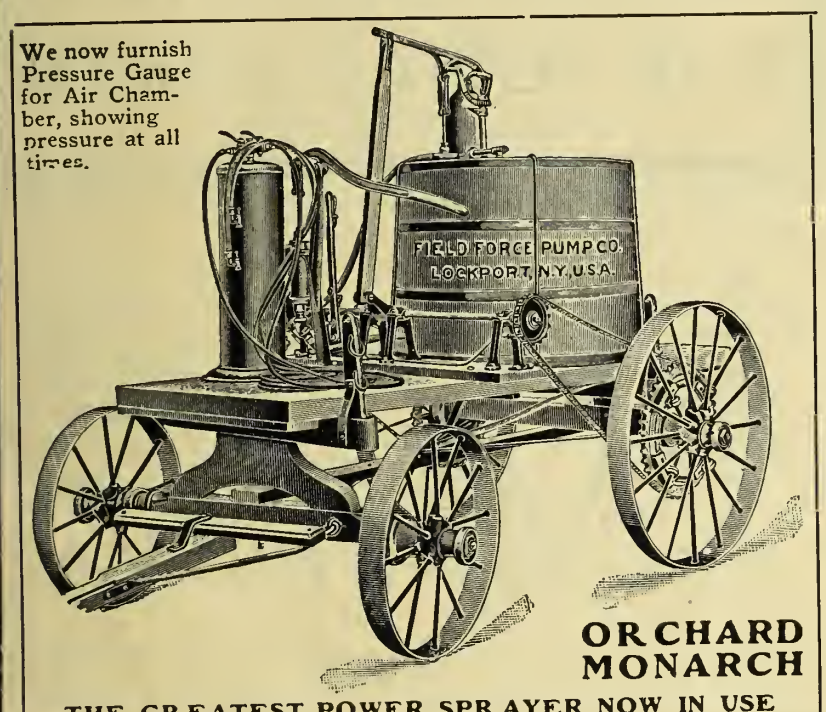
No need now to use space to tell of the advantage of spraying your fruit in order to secure best results from your orcharding—almost everyone is now convinced that fruit-growers must spray.

The point to consider now is, What pump shall I use? You cannot afford to be without the best—the line of pumps manufactured by the Field Force Pump Co., Elmira, N. Y., (formerly of Lockport, N. Y.)

This line of pumps are the best for several reasons. First—They have the greatest power, and great power is necessary to produce the fine mist in spraying which gives the best results. Second—They are strongly made and will last longest. Third—They are so constructed that the agitation of the spray mixture is most perfct—and every practical man knows how necessary it is that the mixture be kept agitated. Fourth—Notwithstanding the great power of these pumps, and the thorough agitation they produce, they are easy to operate.

EMPIRE KING
Best Barrel Sprayer

Pumps and Appliances of all kinds for all kinds of work



We now furnish Pressure Gauge for Air Chamber, showing pressure at all times.

ORCHARD MONARCH

THE GREATEST POWER SPRAYER NOW IN USE

Send for Illustrated Catalogue; free

We would call special attention of commercial orchardists to our large sprayer, the "Orchard Monarch," which is shown by inclosed cut. Before the American Apple Growers' Congress, at St. Louis, Nov. 19, Prof. J. C. Blair, of the Illinois Experiment Station, said that the time has arrived for large orchardists to pay more attention to the styles of pumps they use, and that those of greater power should be adopted.

Now, we believe the Orchard Monarch is the most powerful sprayer made. Tank of large size (150 gallon capacity); mixture is vigorously agitated; power is furnished by sprocket wheel on axle of wagon, with special air chamber, which will hold enough air to spray tree after the wagon stops. It will pay large orchardists to investigate this machine.

Note new address of our factory. Our business grew to such extent that our old facilities were inadequate. We now have one of the finest factories in the United States.

Our new catalogue tells all about our line of pumps. Send for it, free. Tell us the size and age of your orchard and we will recommend style of pump best suited to your needs. Write to either address. Send all orders and inquiries from Kansas, Iowa and Nebraska to St. Joseph address and save time and freight charges.

Field Force Pump Co.	Mo. Valley Seed Co.
MANUFACTURERS ELMIRA, NEW YORK *(Formerly of Lockport, N. Y.)*	*General Western Distributers* ST. JOSEPH, MISSOURI

Fall comes, he covers them, and then there is almost nothing for him and his help to do till spring. He may have manure to haul, ditching to do, and perhaps some other work, but it is comparatively little. If the same man were a general fruit grower, he could plant some things in the fall; he could employ berry pickers from the beginning of strawberry season till the end of the blackberry season. During the winter there is trimming to do, blackberry roots to be cut into root-cuttings in the cellar, trimmings to be hauled off and burned, grape stakes to be cut or trellises to be built. Throughout the year he has a better distribution of work; he can hire help and hold it better because he has work to do the year around. Best of all, he has reduced the hazard of a total loss of his year's income by one calamity. In other words, he is insuring himself by distributing the hazards and getting an average.

We planted corn between our blocks of strawberries again last spring. Recently we husked it and got some of the best corn grown in the neighborhood. The stalks are all standing and will cause the snow to drift on the plants, as they did last year. We were very much pleased with the results last year and we shall probably continue the system. For the benefit of any who do not know what it is, I would say that we have our plants in rows north and south in "lands" from five to ten rows wide. The prevailing winds here are from the west. By planting a row of corn between each two "lands" and leaving the stalks standing, the snow, which would otherwise blow to the next fence to the east, is drifted on the plants east of each corn row and furnishes a splendid winter covering.

In addition to the corn, we sowed oats between the rows at the last cultivating in September. Our rows are narrow this year. In June and July there was so much rain that we could not get on the ground regularly to cultivate the plants, as we should have done, and they ran and rooted between the rows. Then, when we went in with the cultivator, we tore up thousands of these young plants and they died. The rows now look as if the plants had been set to grow fruit on the matted row plan instead of plants. This gave space for a narrow strip of oats between each two rows of plants. As the fall has been very open and warm, the oats have grown well. When the real freezing weather of winter comes they will be killed and, falling over on the plants, will furnish considerable covering. We have considered the matter pretty carefully and have concluded that the cornstalks and the oats together will protect the plants, and we shall not go to the expense of hauling straw for covering. In that way we save considerable money and a large amount of hard work, and we believe the results will be satisfactory.

I do not know what the supply of plants for next spring is. I heard some time ago from one of the leading plant sections of the country that it was not as large as usual there, owing to too much wet weather. It does seem as if the water needed in 1901 was held back a year in some parts of the country. But, whatever the supply may be, it behooves growers of berries to get their orders in in good season. I know one plant man who had to refuse over 4,000 orders last spring, and at the end of the season some people were scouring the country to get plants, and then failed. Some growers, if they cannot furnish the kinds ordered, return the money. Others reserve to themselves the privilege of substituting, unless the buyer says that that shall not be done. The former plan is better for those who order early, as it gives them a chance to look elsewhere and get what they want. The latter is better for those who order late, as they would probably not be able to get any plants anywhere if the order was held a little while, believing it could be filled, and then returned when it was found that it could not. The man who orders early stands the least chance of the annoyance of not getting what he wants under either plan.

Another suggestion. Order your plants to be shipped early if you can possibly handle them. Unless you have tried it, you have no idea how much better a plant is that was dug in April, heeled in, and then planted in May, than one that was not dug until it was to be planted. Plants ship much better early in the season. They are lighter and the express charges are less, and they grow better, whether planted immediately or heeled in. Furthermore, there is less liability of failing to get something ordered. In the rush of spring around a plant establishment it is almost impossible not to let the plants of some varieties go, failing to reserve enough for certain orders to be filled late, and when it comes time to fill these orders, the plant grower is likely to find that in a few instances at least he has overestimated the number of plants he had and some early order must go out partly filled and money must be returned. He regrets it, and his customer is annoyed and disappointed. If the order could have been filled in its regular order, it would have been a late comer who would have been disappointed, and late comers must expect some disappointments.

WILLIAM S. CRAWFORD.
Cuyahoga Falls, Ohio.

Spraying With Paris Green.

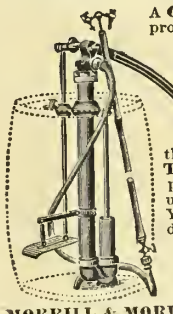
At the recent meeting of the Canadian Horticultural Association at Hamilton, Robert Cameron, superintendent of Queen Victoria Park, Niagara Falls, Ont., said:

"Perhaps some of you noticed that the trees, particularly the plums, along the trolley line from Hamilton to Grimsby had lost their foliage. This, in my opinion, is caused through spraying with Paris green. (Prof. Hutt gave it as his opinion that it was caused by fungus.) There are many things burned by spraying with Paris green. A little experience that I have had in this line, I believe, would be worth thousands of dollars to this country.

"Paris green, if it is properly used, will not harm any plant, whatever the plant may be. You can make the plant green with it and it will not burn the leaf if it is used in the right way. Take about a pound of Paris green and put it in a small can, and put enough water into the Paris green to make a soft paste. Take as much of it as will make the water as green as you want it, and spray any plant after the sun goes down. If the sun comes out after that plant is sprayed, it will certainly burn. But if put on after the sun has gone down, it will not injure the tenderest plant.

"No plant is more quickly injured than the eggplant, the leaves of which are very tender. I have made the leaves of this plant so green that they were like Paris green themselves, and not a burn resulted."

Get the Best



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THE ECLIPSE

is a good pump. As practical fruit growers we were using the common sprayers in our own orchards—found their defects and then invented **The Eclipse.** Its success practically forced us into manufacturing on a large scale. You take no chances. We have done all the experimenting.

Large fully illustrated Catalogue and Treatise on Spraying—FREE.

MORRILL & MORLEY, Benton Harbor, Mich.

Actual Results

of the advantages of spraying are shown in above picture. The two piles of apples came from the same number of trees in the same orchard row. The big pile from sprayed trees. Pictures taken from actual photographs.

The Best **Spraying Pumps**

bucket, knapsack, barrel, hand and power, are made by the undersigned, inventors and sole owners of many new valuable spraying fixtures and features. Write for free catalogue and booklet on insects, plant and fruit diseases.

THE DEMING CO., SALEM, O.

Read our great premium offer on page 20 of this issue.

Continued from page 11.

and shrubs, that bloom in the spring late place, could have a few flowers and fall, when children can enjoy them. Let our state be noted for its rural beauty as well as its big red apples.

"Profitable Distribution," a paper by W. A. Gardner of Springfield, outlined plans for co-operation in this work. The growers should take up the work of inducing better packing, having a brand and keeping fruit to that brand. He discussed refrigeration and what is best needed in the way of icing and packing. We can obtain concerted action along these lines only by organization. This would place the fruit grower in shape to do something in the way of aiding transportation. We could open up new markets and in many ways benefit the grower. He gave plans in detail for better distribution.

The president reported the society in good working order. The greatest work he could now see ahead of us is the World's Fair. He said the society was capable of doing a great work and making a show that would astonish the world. We need a storage full of apples alone, and we should be able to give every foreigner there an American grown apple.

The secretary's report gave a history of the society since the first meeting, in 1859. He said the records show that one of the first things discussed by the society was pear blight. The names of apples came in for work, many having five and six names each. Curculio and other insect pests came in for discussion at this early day. The society has done valuable work for the state. Many have been interested and drawn into it by the interest evolved through the society. If you read the past records you need not be discouraged. One of the most interesting subjects the society can discuss is individual attention to trees for propagation. The display at the World's Fair at St. Louis comes up for attention now and is an important consideration. Just what shape the work will take is not known as yet, but great things will be expected of us. We shall want help, not only in selecting specimens for exhibition, but to grow the best. Every known help should be employed to grow the best, such as cultivating, spraying, bagging, thinning, ringing and every manner whatever that will produce fine fruit. We shall need at least 1,200 to 1,500 barrels of apples. We should have ten barrels per day for use during the entire fair. To help make the proper display, it would seem that we need $50,000. Our state will stand in the position of hostess.

E. R. Jeannette of Anna, Ill., said the entire effort of the society seemed to be to increase production, not to distribute or market. He believed the latter the great question. Trusts or combinations are here to stay, and the fruit growers are going to be left unless they combine and organize for mutual benefit. No business feeds so many parasites. One reason we have failed to organize is having so little confidence in each other. Many a farmer will believe any old thing a drummer tells him, but won't listen to one of their own neighbors. We must organize some way if we would do away with the unnecessary expense for marketing.

F. W. Taylor, World's Fair commissioner, was present and stated that the great importance of the pomological interests of the state was recognized by the board. Fruits alone had been given large space, twice the amount allowed in Chicago, and the arrangements were much better. He suggested that arrangements be made early for a large display. Important plans for storage space, funds and exhibits should be under way early.

Dr. E. M. Shepard of Drury presented an exhaustive paper on "Soils and Subsoils, discussing the formation of various soils and their relation to horticulture.

"Protection of our Birds," presented by August Reese, secretary of the Audubon Society of Missouri, was an earnest plea for the care of these friends and helpers to the fruit grower. Some of them, like the chickadee, stay all winter and eat insects and insect eggs. Nuthatches, orioles, warblers, etc., all subsist mainly on insects. Woodpeckers, perhaps the most valuable, were constantly hunting all winter under bark and in crevices for eggs of insects. The meadow lark, which is very valuable to farmers, is becoming more scarce each year and should be protected. Many others were named that, were they gone, the fruit grower would find a great increase of insects in a short time. He urged the planting of such fruit that birds eat first and attract them to the orchard, instead of driving them away. In winter a little grain scattered regularly will do much to induce them to come near our homes and finally nest there. The members of the Audubon Society are among the best men in the state, and will present a bill to the legislature, and they hope every one will urge their representative to assist in passing the same.

Under reports from Experiment Stations, Prof. W. L. Howard reported lessons learned along more approved lines of culture, and was glad to see the fruit growers generally giving more attention to this matter. He had learned much of the relation between the color of peach twigs and hardiness. It is not always low temperature that kills the buds. Other considerations come in. The greatest harm is done when the buds have slightly grown, when a light frost may injure or kill them. Whitewashing greatly retards early starting.

Dr. Whitten said there was never a time when the station was in as good a position for work. We are now trying many experiments in plant breeding. We want to find an apple with all the desirable qualities, and it is only a question of time when we expect to produce a variety better adapted to the west. We are also adapting methods of culture and soil to the making of the right variety. We also hope to do something in the near future with our wild fruits, that we may produce something really valuable from what is now thought of no value. We are getting into better shape for experimenting, owing to the new building, and we hope to see the time when the station can answer and investigate the many requests made from local districts. Much of the work of the station must be let go, but we now hope to have time and help to work out questions coming from all parts of the state.

Professor Stinson, of the Missouri Fruit Experiment Station, stated that while many valuable experiments were made, the results were necessarily slow. Bitter rot experiments brought out much valuable information. The time of burning by Bordeaux mixture is done early in the season. Thickness of the skin on apples has no relation to susceptibility to bitter rot. Much information has been gathered of value to fruit growers along lines of adaption of certain varieties to certain soils and location.

J. M. Irvine, editor of the Western Fruit-Grower, spoke briefly on the best means of gathering fruit statistics. Some suggestions on this subject will be submitted in a near issue of the Fruit-Grower.

Mr. Butterfield finds many orchards in the southeastern part of the state prematurely dying. Much has been planted on land not suitable, and then not handled right. Some varieties are doing well there. Pears do especially well there. It is the easiest of all fruits to grow; it is infected by few insects and needs little cultivation. I expect to plant this fruit largely. Cherries do well there. I find old trees of a fine white seedling sweet cherry of especially fine quality. Plums also do well and grow to perfection. There are many seedling plums worthy of cultivation.

"Small Fruits," by W. W. Litson, Jr., of Nevada, and "Peach," by Jacob Faith of Montevallo, were both good papers of practical interest.

A general discussion on the varieties of peaches showed the Elberta still the leading variety for the commercial orchard. Buyers all ask for it. For a later variety, the Salway is the best.

Dr. Whitten stated that fodder, or something to protect the buds, could be successfully used on trees, but it was not practical for the large grower to tie up a large number. Lime and sulphur spray is good to retard swelling of buds, but it needs a good deal and will wash off; hence they would need spraying frequently. Mulch on the ground does not retard the progress of buds. I have had roots and trunks froze, and a branch of the same tree, exposed to warmth, would swell at once. You can retard by cutting back just as it begins swelling, but it does the tree some damage by loss of sap.

"Plant Breeding," by Luther Winchester, delegate from the State University Club, was a well written paper on this important subject. Also a "Study of the Codling Moth," by M. Oliver Cole of Springfield.

"Horticultural Study in Europe" was the subject of a short address by Dr. Whitten, who has recently returned from Germany. One of the first impressions, said Dr. Whitten, is how the people make so much out of little things. Every corner and plat is made beautiful with vine and blossoming plants. People are proud of this love for flowers, and the field work showed the same love. Along the Rhine, where hillsides are clad shows personal attention. The hills are steep and different from Ozark hills. The land is in small plots, held in place by stone walls; for a mile or two from the river nearly half the walls are built from stone picked up from the land. Every foot is utilized, if only room for three vines, and many times top soil has been carried up in baskets. Back on more level land I found the plum or prune cultivated and tilled with the same attention. Fruit trees are mostly planted along the streets and canals. There are old trees to be seen sometimes that have stood for generations. There are nearly as many varieties of fruits as number of trees, and by this way they have succession of fruit, and are able to bring few to perfection each day. Some German cities have special schools for training of the people in caring for fruits, preserving, drying and all ways, many of which we have no conception of. This has prae-

KANSAS

Is a new variety of Strawberries of great promise. It is large, productive, showy, and one of the best growers we know. Write for our new 1903 catalogue giving full description of this and forty other kinds, both old and new.

With prices ranging from $1.75 to $2.25 per thousand, for as good strawberry plants as you can get anywhere, no matter how much you pay for them.

A STOCK OF PLANTS EXCEED'G **2,500,000**

Write TODAY and Save Money

J. W. JONES & SON

ALLEN, MARYLAND

You can't afford to miss a SAFE opportunity to make ten, twenties, hundreds of dollars for every one invested—and open to investments as small as $5 per month. It is an offer that comes to but few people in a lifetime, and to those but once.

Such an Opportunity Is Now Open to You.

You can't afford to neglect it. Don't delude yourself with hthe reflection that "If it's so good, somebody else would have snapped it up." That's exactly what "Somebody Else" said (instead of "snapping") and thus let the chance come to you. Don't allow yourself to fall under the same delusion. Investigate the matter. If we can't **show you,** we don't want you in. It is a St. Joseph enterprise, and we will convince you of the reasonableness, and, in fact, **practical certainty** of our business, or contentedly allow you to remain in the class of "sayers." Be a "snapper" to the extent of carefully examining our printed matter. Sent free on application.

Price of stock now 30 cents per share.
Payments of $5 per month and upward.

J. W. GREGORY, Secretary and Manager

The ARIZMO DEVELOPMENT CO.

I. O. O. F. AUDITORIUM, ST. JOSEPH, MISSOURI

STRAWBERRY PLANTS EXCLUSIVELY

High grade plants at low price. Write today for catalogue.

Eagle Fruit Farm, Erankfort, Tenn.

Strawberry Plants at WHOLESALE PRICES

from the famous Fruit Belt of Michigan. Also Raspberry, Blackberry, Currant and Gooseberry plants. Price list free.

R. E. ALLEN, R. R. No. 2, Paw Paw, Michigan

NAMES OF FARMERS WANTED

The Missouri Valley Farmer wants names and addresses of farmers anywhere in the West. They want to get them interested in their big farm magazine which now has a circulation of over 100,000 copies and is acknowledged to be the best farm paper in the West. The subscription price is 50c per year, but if you will send them five farmers' names and addresses and ten cents in stamps or silver they will enter you as a subscriber fully paid for a whole year. Address Mo. Valley Farmer, Topeka, Ks.

Canning Machines

SPECIALLY SUITED FOR HOME CANNERS.

Send for circular describing small and large canning outfits. Hundreds of them in use. Write at once to

M. FOERG, - Meridian, Miss.

THE MAMMOTH

Write for our catalogue; it will tell you all about the Mammoth and also other berry plants, Palm Seeds, Grape Vines and hothouse Grapes. RONSSE & BOLLINGER, Box 953, Riverside, Calif.

tically doubled the planting and revolutionized the industry. The greatest care is given to the fruit.

The special committee appointed to investigate the Black Ben Davis and Gano apples, to determine whether or not they are one variety or two, asked for further time. Dr. Whitten, as chairman of the committee, said the committee was not prepared to report at the present time, and asked for further time to investigate. The committee was informed that they were to use their own pleasure, and to take all the time necessary. Mr. C. M. Stark of Stark Bros., who contend that Black Ben Davis is different from Gano, said the postponement of the report was satisfactory to his company, if the committee was unable to report at this time. He also asked the privilege of inviting all the members of the Missouri State Horticultural Society and the members of societies of adjoining states, or so many as desired, to become guests of his company on a trip which would leave St. Louis in the autumn of 1903 to visit the original trees in Northwestern Arkansas. Those who can make the trip are asked to meet at St. Louis, and the start will be made from there.

President Robnett, speaking for himself, said he would join the party and make the trip.

Several resolutions were passed and many short speeches made, which were interesting and helpful.

The present officers wer re-elected for the coming year.

Throughout the several sessions the program was interspersed with vocal and instrumental music, whistling solos and readings by the best talent in the city, that did much to render the meetings pleasing to all.

The local horticulturists did all in their power to please their guests, and ably succeeded.

The Ozark Apple Growers' Association met in Springfield, Mo., Dec. 1 and 2, and was attended by a large number of delegates from Missouri and Arkansas.

The Springfield Club tendered the use of their beautiful hall, also serving dinner for the accommodation of the guests.

The business of the association was of much importance. Among other things the association decided to organize into a stock company, of which the shares shall be placed at one dollar each, and any member allowed as many shares as desired; each member to be allowed a single vote, however, whatever number of shares held.

A committee was appointed to report outline of plan for the incorporation of the Ozark Apple Growers' Association, and this committee will report at a meeting to be held later.

MRS. A. Z. MOORE.

A coated tongue, foul breath and clogged condition in the bowels suggests the use of Prickly Ash Bitters. It is just suited for such ailments.

Meeting of Missouri Valley Horticultural Society.

The first indoor meeting was held in the club rooms of Coates Hotel, Kansas City, Mo., Nov. 15. There seemed to be as much enthusiasm manifested as ever. The number of members was larger and representative, as many of our advanced horticulturists were present. President Homer Reed was in the chair.

Prof. Albert Dickkens of the Manhattan Agricultural College gave a very interesting forty minutes talk on "Experimental Horticulture." His talk was well received and was quite instructive. The discussion that followed was equally as instructive.

To attempt a report of his address is beyond my ability, not having taken notes. While much had been done by scientific effort, yet the fact remains, so far as the apple is concerned, all our good varieties are accidents. He, however, claimed that these varieties have been improved by careful selection, yet he said many were unwilling to admit or concede the fact. Is it a fact? For one I have "got to be shown."

The next paper was by Mr. Asa Chandler, on "Does it Pay to Renew Old Orchards?" I hope to get this paper for the use of our readers. The general opinion was that when an orchard has performed its function and becomes old and declining that it is better to remove it rather than to attempt filling in new trees.

Some one asked, "How do you keep Kieffer pears as late as Thanksgiving?"

President Reed thought them hardly worth the keeping. This brought quite a number to their feet in defense of the Kieffer. Geo. Holsinger said the handling of the Kieffer was an important factor in the value of this pear. That as a canner it was the equal of Bartlett; that when the Kieffer was picked early and properly ripened it was not a bad pear to eat out of hand, but if allowed to hang until late, stone cells formed in the pear and it was not so good. Thus the value of the Kieffer was enhanced by proper handling. I noticed the difference in this pear while in Washington. We had picked and marketed our Kieffers at $1.25 to $1.75 per bushel, while in Washington larger and finer pears of this variety were a drug in the eastern markets at 60 cents per bushel. In their lack of knowledge how to handle this pear, many still nanging Nov. 1st were firm and not at all edible. Had these pears been picked a month earlier, I feel certain they would have brought the grower more money and given the consumer more pleasure in their consumption. We incidentally observed that some of our Kieffers we had with us were eaten with a relish by persons in Washington who insisted that they were different from their Kieffers. On explaining the modus operandi of our handling this pear, they assured us that they would be guided by our advice and pick their Kieffers in time to be more palatable. A Kieffer when half grown will, we assert, make a smoother and better preserve than one when fully developed. To this our friend Taylor, the wit of the society, made allusion to the pickling of the black walnut, at which sally the society laughed, and we failed to see the point of the joke. One feature of this meeting was a splendid show of fruit from Versailles Mo., shown by Mr. S. P. Bailey. These apples were as fine as ever shown of the several types, being Ben Davis, Missouri Pippins, Winesaps, Black Twig, Arkansas Black, Pennock and Little Romanites. Mr. Bailey was accorded an opportunity of speaking of central Missouri as to her possibilities in both fruit growing and as a mining district. As we had been there during the past summer we were able to testify as to his claims. Secretary Barnes of the Kansas State Horticultural Society was present and spoke of the Kansas exhibit of agriculture and horticultural product in Washington at the time of the G. A. R. encampment.

FRANK HOLSINGER.

STRAWBERRY PLANTS

Send for catalogue, ready January 1, describing 45 varieties and telling how to grow

Large Crops of Strawberries Without a Pedigree

I have the largest supply and the best rooted plants that I have ever grown. Can furnish them by the dozen or by the million; guaranteed not mixed and true to name. No one is better prepared to handle plants as they should be handled than I am. No plants shipped that are not grown in my own fields.

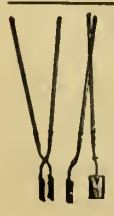
D. McNallie, Sarcoxie, Mo.

CHOICE
SEEDLING PEACHES

Grown from pits of Bokara No. 3, Champion, Chair's Choice, Crosby, Crawford's Late, Elberta, Triumph, Hill's Chili, Mountain Rose, Stump, Wonderful, and others for orchard planting.

Also Apple trees, Cherry trees, Plum trees, Grape vines. Send for price list.

SILAS WILSON, Atlantic, Iowa.



The Ryan is the only self-cleaning post hole digger and transplanter made. We warrant it to work perfectly in all soils, wet or dry, light or heavy. No matter how sticky the soil is it can be cut out instantly by simply spreading the handles. Agent's price on two or more.

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Offer for spring of 1903 the best selected stock of

Fruit and Ornamental Trees

Also all kinds of forest tree seedlings. Everything at reasonable prices. No cheap John collections made up of stunted trees. Satisfaction guaranteed. NONE BUT THRIFTY STOCK SENT OUT. Catalogue with colored plates free for the asking. Write for prices and terms to

Humboldt Nurseries, Humboldt, Neb., Lock Box 502

GRAFTS

Over thirty years' experience in puttting up Grafts for the trade. We make any style to suit the purchaser, piece or whole root, on straight or branched seedlings. Each order is grafted by itself by old and competent workmmen.

APPLE SEEDLINGS

Graded to the highest standard. Any grade desired. Straight or branched roots.

APPLE, CHERRY, PEACH, PLUM, SHADE TREES, SMALL FRUITS, SHRUBS, ROSES, FRUIT TREE STOCKS, ETC.

On account of increase in business, we were compelled to erect another storage building last fall—size 260 feet by 160 feet. A switch from the C., B. & Q. railroad enters our building. Correspondence invited.

SHENANDOAH NURSERIES, D. S. Lake, Propr., Shenandoah, Iowa

"CREASIN'" HARNESS used to be a disagreeable job. You got the oil all over yourself, the floor and the room, and too much of it on the harness. This is all done away with if you use **BLACK BEAUTY HARNESS OIL** an oil in paste form which has all the good qualities of oil and none of the bad ones. It is so good and gives such splendid satisfaction that we send it anywhere in the United States express prepaid on trial. Order a package, grease a harness or dress a buggy top, and then if not perfectly satisfactory, return what is left to us and we will refund the full amount of your money.

THE BLACK BEAUTY HARNESS OIL CO., Napoleon, Ohio.

APPLE AND PEACH TREES

And a general assortment of high grade nursery stock, including Pear, Cherry, Plum, Grape vines, Ornamentals and Roses.

F. H. STANNARD & COMPANY, Ottawa, Kan.

Kieffer Pear Seeds Thos. Meehan & Sons, Inc. Dreshertown, Pa. Fresh crop now ready; write for prices and sample

Osage Orange Plants

We have a very fine stock of the above plants. They are graded as follows:

1 yr.—No. 1. 2 yr. extra heavy ¼ in. and up
1 yr.—No. 2. 2 yr.—No. 2.

Let us have a list of your wants in this line for prices. We also carry a complete line of nursery stock.

SHENANDOAH NURSERIES
D. S. LAKE, Prop., Shenandoah, Iowa

TWO NEW STRAWBERRIES

We are introducing this season two new strawberries, "Early Hathaway" and "Louis Hubach." They will become leaders. Address the originators,

HUBACH & HATHAWAY, Judsonia, Ark.

Purify the sewers of the body and stimulate the digestive organs to maintain health, strength and energy. Prickly Ash Bitters is a tonic for the kidneys, liver, stomach and bowels.

LOW SLEEPING CAR RATES

To St. Paul and Minneapolis.

The Chicago Great Western Railway has three tourist Sleeping Cars per week to St. Paul and Minneapolis. Rate for double berth only $1.50. For particulars inquire of

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Valuable Pointers About Texas.

A 144-page book, profusely illustrated, of present day conditions and prospects in the Lone Star State. It is worth your while to get a copy; free on request.

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DON'T YOU NEED

Peach trees
Pear trees
Persimmon trees
Roses (grafted)
And other nursery stock ?

If so, send for our descriptive catalogue and price list. We have a very complete line, and the stock itself is all that could be deseired—thrifty, vigorous, clean. The Unitede States Government recognizes the value of our stock and is one of our regular customers. Let us know your wants.

Glen St. Mary Nurseries, G. L. Taber, Prop.

GLEN ST. MARY, FLORIDA

ILLINOIS CENTRAL EXCURSIONS

1—Jacksonville, Fla.	$52.50
1—Thomasville, Ga.	48.80
1—New Orleans, La.	43.00
1—Vicksburg, Miss.	38.00
1—Hammond, La.	43.90
1—Daytona, Fla.	59.10
1—Tampa, Fla.	65.20
1—Palm Beach, Fla.	71.50
1—Havana, Cuba	106.70
1—Jackson, Miss.	38.00
1—St. Augustine, Fla.	55.40
2—Mt. Clements, Mich.	$34.10
2—French Lick Springs, Ind.	30.90
3—Chicago, Ill.	$14.75

ABOVE RATES ARE FOR ROUND TRIP TICKETS FROM OMAHA, NEB.

Column (1)—Tickets on sale daily; return limit June 1, 1903.
Column (2)—Tickets on sale daily; return limit 90 days.
Column (3)—Tickets on sale Nov. 30th, Dec. 1st and 2d; return limit, Dec. 8th.

Round trip tickets on sale to nearly all points in the South and Southeast. Stopovers allowed both going and returning.

Attention is called to the "Dixie Flyer," a through train via Nashville, Chattanooga, Lookout Mountain, Atlanta and Macon to Jacksonville, Fla.

Homeseekers' tickets, at rate of one fare plus $2.00 on sale first and third Tuesdays of each month, to points in Tennessee, Kentucky, Mississippi, Louisiana, Georgia, Alabama, etc.

Correspondence invited and information cheerfully given. Get copy of our beautifully illustrated booklet, covering points of Interest in the Sunny South, at 1402 Farnam St., Omaha, Neb., or write

W. H. BRILL, Dist. Pass. Agent., Ill. Cent. R. R., Omaha, Neb.

POSITION—By a competent nursery and fruitman, temperate, steady, two years experimental station experience. Geo. Mayo, Mountain Grove, Mo.

Our Gray and Blue Granite Steel Ware and Tinware department is complete. Our catalogue illustrates 674 different styles kitchen utensils, every piece Guaranteed. We sell you at half the regular retail price. Send for catalogue, it will interest and save you money.

Send for Our Catalogue It has 432 pages, size 9x11 inches Postage is 15c, but if you will cut this ad out and send it to us we will mail the catalog FREE. **MARVIN SMITH CO., 55-57-59 N. Jefferson St., CHICAGO, ILL.**

Practical Advertising for the Fruit-Grower.

At the late meeting of the Minne-State Horticultural Society, Mr. F. B. White delivered an address on the subject of "Advertising for the Fruit-Grower," which is so different from the usual papers read at such meetings we publish it in full. We will say that Mr. White is one of the best posted men on agricultural advertising in the United States, and is qualified to speak upon the subject. His address follows:

"You have doubtless considered it queer that your program committee should arrange for a talk on advertising, and perhaps some of you have regarded it out of place and foreign to the purpose of this gathering. However, I have no apologies to offer, for the subject or for my appearance here. I can only assure those who have any

Mr. Frank B. White.

doubts as to the practicability of advertising for the fruit-grower that it is one of the essentials following successful fruit growing, and I feel quite at home in addressing you on this subject.

"There is another reason that I have for feeling at ease with you. I was informed that I would find the greatest lot of 'grafters' in this audience that I had ever seen assembled together in one place. Now, we advertising men believe in grafting just as much as you fruit-growers do, and our work is regarded by us quite as important. Our 'grafting' is advertising truth into good business men. But as my paper is to be limited to ten minutes, I must proceed to my subject without further preliminaries.

"'Practical advertising for the fruit-grower' presupposes that the fruit-grower has something to sell, that he produces more than he needs for his own use, and desires to dispose of it to the best possible advantage. Now, let me say on the start that advertising does not necessarily mean inserting your card or announcement in a newspaper, though that is one of the best means of publicity that I know. You are advertising in this gathering the products of your farms, and I am sure that it is your desire to realize the largest possible returns for your labor and the time expended.

"You are, I take it, expansionists, trade expansionists, and I believe that it is time that you fruit growers get a little of that expansionist idea into the methods of conducting your business. There are too many of us who are dependent upon the other fellow. We allow the other man to dictate terms to us rather than dictating our own terms, and I want to say that by a system of advertising you fruit producers can become absolutely independent in the disposal of your product instead of disposing of your surplus stock at the market price. You can, if you will, to a very large degree at any rate, make your own market price.

"Now, a plan involving a judicious system of advertising by you will result in increased profits, more dignity and satisfaction in your business, and, in my judgment, this horticultural society can do no greater work than to encourage its members to not only produce better fruit, handle it with greater care and be more particular in the preparation of it for market, but also to urge that every man shall do his utmost to create a local demand for a greater use of fruit. I believe that we should take every advantage of opportunity or privilege to advertise our products and to do this two things are always to be borne in mind. First, the special article produced; second, who produces it. Every successful manufacturer at the present time sees to it that his goods are put out in an attractive style. Vast sums are expended for printing in an artistic form, labels, cards, signs, booklets circulars and attractive stationery. The proportionate cost of these things is not great, but you can usually tell what kind of a business man one is from the style of his letters, and I dare say that you can readily appreciate how good a fruit grower a man is by the appearance of his package. I would urge upon you, therefore, to exercise the utmost care in the fitting and the packing of fruit for the market, and let the advertising idea run all the way through your business. It's your fruit going to some one, and that some one should know that it comes from you. Attractive packages going to the railroad advertises your farm and yourself as one of good business ideas.

"All of this you see is necessary before we touch the main points of our subject, namely, newspaper advertising. There is more that might be said. This advertising idea can continue from the time it leaves your station until the fruit is consumed. Affix your stamp or earmark upon it in every way you can. People will in time begin inquiring for your fruit; you will have an established demand for it. It is not an uncommon thing for the groceryman to have a request for some of the product of the successful farmer who is known to be of the successful kind.

"The fact is our people are not eating enough fruit. There is no question about this. I maintain that a large consumption of fruit betters the character and condition of manhood. You show me a man who is a lover of fruit, who eats it as well as grows it, and he is more than likely to be a good citizen. There is probably less drinking and less drunkenness among the fruit growers than among any other class of producers. Fruit prevent or assuages the appetite for strong drink. You will have better citizens in your state if you will make them larger consumers of fruit.

"California has done more in a business way to advertise its products than any other state. By organization and the co-operative expenditure of vast sums they have created a demand for oranges and other popular fruits that was never thought possible a few years ago. People are eating more oranges because they have got in line, but it would not be an exaggeration to saw that ten times the quantity could be consumed were an effort made in an advertising direction—to anywhere near the extent that some other lines of business are making. Take, for example, health or cereal foods. Any one with a flour mill at hand and a pile of sawdust can start an advertising proposition along health food lines and sell it by the train load. It is being done; if not out of sawdust, something that costs but little more, and it is good stuff, too, most of it at any rate. If you have any doubts about this, make a little inquiry and I am sure you may satisfy yourself.

"A much more sensible thing to advertise is the product of the orchard, the vine, the bush or plant. True, it is seasonable, but it should be handled with that end in view. Things are advertised that are seasonable. For example, seeds and many another thing that you buy for use on your farm. It is the intensive farming idea that is the order of the day. The range is giving place to the ranch, and the ranch is being divided up into small farms. More and better product is the object of this society, I take it.

"But what is the use of producing more and better fruit if you cannot sell it for a better price and cannot make more out of it. There is no use hiding your light under a bushel. How many of you have acquainted your neighbors, even, of what you are producing? More than that, you must reach beyond your neighborhood and become a business man in the broader sense of the word if you expect to attain a commanding position. Make your knowledge of fruit growing shine forth wherever your fruit or name goes. Don't let the other fellow dictate terms—make your own terms. Create the demand by a judicious system of advertising, and you can dictate terms. If you are simply a producer, nothing more, the commission man tells you what he will do with you and he cheerfully 'does you.'

"Advertising in local newspapers or in the papers that are best suited for your particular purpose, I recommend most heartily, but it will not be complete unless you follow it up with attractive and well prepared auxiliary literature. A good circular or booklet with good stationery are necessary helps. When you receive an inquiry in response to your advertising, you should make it your positive duty to treat that inquiry just as you would a new friend. It costs something to get an introduction to that friend, it is

Made for Farmers

That's why it pleases them. Farmers who are remote from machine shops, etc., want an engine which will work right along, with no need of a machinist or repairs. The Weber Junior (2½ horse power) does this, and that is why it is the favorite gasoline engine for farm use from Maine to California.

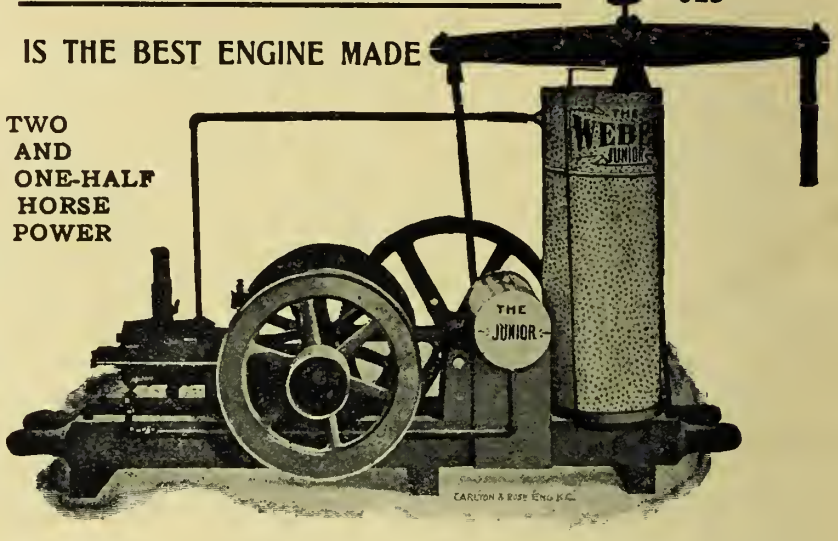
Fruit farmers need a good gasoline engine for pumping water, sawing wood, grinding feed, etc., and especially for operating spray pumps. The Weber Junior is used by many readers of the Western Fruit-Grower for just these purposes. It can be mounted on a wagon and will furnish power for spray pumps which will produce the fine mist so necessary to successful spraying. It is the cheapest power one can use.

THE WEBER JUNIOR

SIXTEEN YEARS OLD

IS THE BEST ENGINE MADE

TWO AND ONE-HALF HORSE POWER



Not only will the Weber Junior run on any farm without breakage, not needing an experienced engineer, but it is shipped from the factory crated ready to run, and can be set up by any one. It is thoroughly tested before leaving the factory, and any defective parts will be replaced free for two years from date of purchase. Can you ask any better proposition?

Send for descriptive circulars, illustrated, which are free for the asking.

Weber Gas and Gasoline Engine Co.

Box 1114-F. KANSAS CITY, MO.

100,000 BLACKBERRY PLANTS

Snyder, Taylor, Stone's, Iceberg, Mersereau, Eldorado, Maxwell's Early, Agawam, Western Triumph, Erie, Ancient Briton, Lovett.

Also all the leading varieties of Strawberries, Raspberries, Gooseberries, Currants, Grapes, Asparagus, Wineberry, etc.

Get our prices before buying. Catalogue free. Address

L. J. FARMER, Pulaski, N. Y.

THE ALABAMA PEACH

IN THE MARKETS OF The NORTH and WEST for The FIRST TIME IN 1900

The first Peaches from Alabama in CARLOAD LOTS, raised along the line of the MOBILE & OHIO RAILROAD, were marketed in 1900 in St. Louis, Chicago and other Northern and Western cities. In every case they were a surprise to the commission men, on account of their large size, beautiful coloring and delicious flavor. These shipments commanded prices equal to, and in some instances better than were obtained for either the Texas or Georgia fruit. The Alabama Peach is an admirable shipper, being firm, free from insects or bruises and reaches the markets in prime condition.

500,000 Fruit Trees have been planted since 1898, Plums, Grapes and Berries

also a success. Also general farm crops—Sugar Cane, Tobacco, Rice, etc.

300,000 Acres M. & O. R. R. Lands in Alabama and Mississippi

FOR MAPS, FOLDERS, ETC., ADDRESS

ALABAMA LAND & DEVELOPMENT CO., MOBILE, ALA.

HENR YFONDE, President. GEO. KILBORN, Secretary.

Now is the Time to Buy Corn

There never was a time in the history of the world that corn was in as strong a position as it is today. The visible supply of corn the world over was never so small as it is at the present time. No matter how great the crop at home it cannot prevent the enormous advance that is surely coming. The consumption of corn is increasing enormously. Glucose factories are going up all over the country and breakfast foods made of corn are being extensively sold everywhere. The Short side of the market is heavily oversold and conservative operators estimate that eight times as much corn has been sold as can be delivered. There can be but one result—corn will go up and up until the man who buys it at the present price will have twenty-five dollars for every dollar invested. A small sum invested now may make you a fortune.

CORN IS WORTH MONEY.

When dealing in corn you can close your deals whenever you choose. All your money, principal and earnings, are subject to instantaneous withdrawal. You have a commodity that always has a cash value and you can close your deal any minute of any trading day in the year. When your deal shows a profit you can close it on a moment's notice and in a declining market you can stop your losses instantly at any point. The man who deals on margins can go into business and out again a dozen times a day if he chooses. This is true of no other line of business.

LARGE CAPITAL NOT NECESSARY.

You can deal with a small sum and your profits will be just as large as though you purchased the corn outright. On a 2 cent margin (customary one) you can buy 2,500 bushels of corn for $50. Every cent advance in the price will make you $25 profit or 50 per cent on your investment. Such advances in a single day are of common occurrence, and December corn will see many of them before the first of the year.

SECURE RELIABLE ADVICE.

Because you have had no experience you need not hesitate to enter the corn market—but don't go in blind. Seek reliable advice and when you have secured it act accordingly. If you wanted to build a home you wouldn't give up the idea because you were not a stonemason or a carpenter; you would seek the advice of a contractor, tell him what you wanted and leave all the detail work to him. You can do the same thing in this business. We know how to deal and offer you all the advantages of our years of successful experience. We will attend to every detail of your operation, and keep you fully informed as to how your account stands. Whenever you desire to close your account you have but to say so, and we will attend to it instantly and remit your money by the first mail.

WE ARE RELIABLE.

When dealing in the grain market it is absolutely necessary that you place your account through a reliable company. You entrust your money to them—you look to them for your information regarding the action of the market, the success or failure of your venture depends largely upon them. As to our reliability we refer you to the Lafayette Bank of St. Louis and such well known St. Louis firms as the Barr Widen Merc. Agency, Neostyle Envelope Co., Smith-Stillman Ptg. Co., Fallopia Lynn Co., and the leading Commercial Agencies.

YOUR SUCCESS IS OUR SUCCESS.

We are in business for the money there is in it, but what we make depends upon what you and our other clients make, and you can feel certain that when dealing with us your account will be looked after with as much care as it would be were you attending to it yourself. It is our business to put you upon the right track, and by helping you to make money, make it ourselves.

WE KNOW ALL ABOUT CORN.

We know all about corn and devote our entire time to dealing in it. We handle nothing else because the corn market offers a broad enough field in itself; to watch it carefully requires all our time. If we handled stocks as well as corn, we would know a great deal more about stocks than we do now, but a great deal less about corn. We have special facilities for watching the corn situation, and constantly receive reports of any changes in crop or market conditions that will be liable to affect prices.

THIS IS THE KIND OF SERIVCE YOU NEED.

If you deal in corn go to a company that deals in nothing else. They will know more about it than those who devote their time to all the different lines of speculation. If you deal in corn come to us—if you want to deal in something else don't come here. We don't know anything about wheats or stocks, but we know all about corn.

SEND FOR OUR BOOKLET.

It tells you all about the corn situation and shows you how you can make a fortune by investing a small sum in December corn. Don't delay. Now is the time to invest, not next week nor next month. Such an opportunity may never again present itself.

Merchants Brokerage & Commission Co.

201 DRUMMOND BUILDING, ST. LOUIS, MO.

worth your while to pay a little more for the privilege of doing business with him. I would treat that individual inquiry just as if there were no others, and as though the success of my business depended upon my making a sale to that particular individual. The careful following up of that new acquaintance may lead to a business freindship, profitable not only with him, but with his friends and his friends' friends, because advertising has wonderfully expansive power. Thus you see the continued accumulative effect of good advertising. This is not a mystical theory, but a real condition. But what I wish to urge upon you more especially is that by every legitimate means you try to make your home town, so far as practicable, the market for your product at prices that will pay you, irrespective of what the same stuff may be sold for at the stores. Give your fruit to them fresh, in the nicest possible shape, appetizing and inviting, and they will become your customers, and pay you the additional cost that you may feel it is necessary for you to charge for fruit and for handling it for them in a first-class way. The more you can market at home at good prices, the better will be general prices in the markets.

"If this will induce you to be more careful in the marketing of your product and encourage you in joining with your fellow fruit grower in increasing the demand at home, as well as abroad, I will feel well repaid for having come."

Opportunities in the South for Growing Apples.

I have been a subscriber of the Fruit-Grower for several years, and I find it one of the best papers I take. As I do not see much from fruit growers in the South, I will give some notes taken while on a trip to North Carolina.

From Asheville, N. C., I went to Canton and Waynesville, on the Murphy branch of the Southern railway. About Waynesville I found a number of fine apple orchards in good condition and full of fruit. At Canton are a large number of small orchards, and some larger ones, all full of fine apples. Most of the growers do not spray, and some do not cultivate as they should, but they grow fine apples so far.

I was surprised at the size and beauty of the apples, and the great variety of them. Buckingham, Spy, Wolf River, Hoover, Bellflower, Newton, Winesap, Esopus Virginia Beauty and Ben Davis were all being shipped from Canton. At Waynesville not so many varieties are being grown and the orchards are larger.

At Asheville I found the largest King apples I ever saw. They had come to market from Yancey county; and at Marion I saw very fine Virginia Beauty, from the same location. With the same care and attention that is given to apple growing in Missouri, growes in North Carolina can have fine fruit and plenty of it; and in the larger cities of the south is a fine market for their fruit.

M. B. STURGUS.
Care of L. & I. Dept. Southern Ry.

Read our premium offer on page 20.

THE GREAT AND GROWING SEMI-MONTHLY

NORTHWESTERN AGRICULTURIST

Minneapolis, Minnesota. Chicago, Illinois

OUR FRIENDS ON THE FARM

We want 100,000 circulation for **The Northwestern Agriculturist** and will pay you to aid us in getting it **before New Years, 1903.** That means 25,000 new subscriptions. Here is our offer (not good after January 1, 1903): **Send us 15 cents** in silver and promise to sign, address and mail three (3) postal cards for us, to farmers who, you know, **ought** to take such a standard farm paper, and we will send you **The Northwestern Agriculturist** a whole year. **Or send us 25 cents** in silver and agree to address five (5) such postal cards to farmers and we will send you **The Northwestern Agriculturist** for two years. Your subscription will begin as soon as you send us the names; we shall not wait until you have mailed the postals to your friends. We will furnish you the postal cards free by next mail after we receive your subscription. The cards will contain ready-printed message which you can sign as your personal recommendation to your friends, urging them to subscribe. That is all there is to our plan, but the secret is that we know that with your neighbor or friend, a recommendation **from you,** a farmer, to take **The Northwestern Agriculturist** will usually result in our receiving the subscription. We want you first to read **The Northwestern Agriculturist** and be able sincerely to sign that recommendation. We shall authorize you to tell your friends that if they will enclose your postal card with their subscription before January 31, 1903, we will accept 30 cents silver and the postal card as full pay (regular price 50 cents) for the year's subscription, or we will accept 50 cents and one postal card as full pay (regular price $1.00) for two years' subscription. Your postal card, therefore, will be worth to your friends either 20 cents or 50 cents, according to their choice. Only one such card, however, will be accepted from any one subscriber, and only when accompanied with the cash. We simply want you to aid us with your friendly influence to introduce the paper to your friends. If then they do not see fit to subscribe we will thank you just the same, and by doing us this favor you will get your own subscription for 1903 for fifteen (15) cents instead of fifty (50) cents, the regular price.

PRESENTS FOR YOU

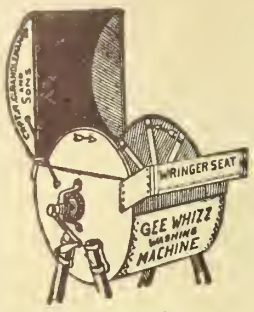
If one such postal card signed by you comes to us with your friend's subscription before January 31st, 1903, we will send you a nice present. If two of your cards bring us resulting subscriptions we will send you a still costlier present, and if all of your postal cards bring us returns we will remember you proportionately. All of these presents will be mailed between February 1st and February 5th, 1903. This will be a special inducement for you to be careful to select persons who really ought to subscribe and then, if convenient, you can supplement the regular cards with any special personal urging you see fit, so that you will get your present and we will get the subscriptions. We have additional inducements for you if you can get more than the above mentioned number of subscribers for us. When you send in your 15 or 25 cents for your own subscription, we will write you details.

5000 MEN AND WOMEN ARE WANTED to represent **The Northwestern Agriculturist** in the Central States. We start you in business, pay liberally for work, protect your territory. Pleasing, dignified and agreeable employment. Write us for particulars.

OUR EDITORIAL STAFF is made up of practical experienced **Specialists** in each department, who have actually demonstrated their knowledge and fitness for the position by having made a **success** in that line of work on their own farms. We employ no mere theorists, but only men and women of **recognized ability.**

WE GUARANTEE the integrity and **honesty** of **all advertisements** admitted to our columns. This means that if ever a subscriber is cheated by one of our advertisers we will pay the loss and then prosecute the advertiser. This paper is a vigorous **defender** of subscribers' **interests.** We have no mercy on Fakes or Frauds.

Northwestern Agriculturist, Box K13, Minneapolis, Minnesota



Gee Whizz Washer

(Double Reflex.)

Adjustable to wash from handk'rch'fs to heavy blankets. (No more use for the washboard.) Washes in one minute what it takes any other machine 10 to 15 minutes. Noted for its easy running, easy on clothing, fast, unexcelled work and durability. The New Improved Gee Whizz Machines are lined with galvanized metal, thus insuring them not to leak, and to stand any climate. Where we have no dealers or agents we sell direct to the user at the lowest wholesale price. Guaranteed to give entire satisfaction. It will pay you to investigate the merits of this machine. Write for circulars. Manufactured by

Capt. Randleman & Sons

1415-1417 E. 18th St. Des Moines, Ia.

Fruit Trees
Forest Tree Seedlings
Fruit Tree Stocks
Small Fruits

Our general price list and catalogue will be ready about Dec. 1st. IT IS FREE. It will pay you to send for it. Low prices, best quality. Freight prepaid on $10.00 orders.

Gage Co. Nurseries, Bx. 602, Beatrice, Neb.

Cheaper than Cornstalks

Protect Your Trees with

Veneered Tree Protectors

A positive protection against rabbits, mice, sun-scald, hot winds and barking by careless cultivation. Will last for years. Send for circulars.

$1 per 100, $6 per 1,000

10 in. wide, 20 in. long.

Hart Pioneer Nurseries

FORT SCOTT, KANSAS.

Wholesale Growers of Nursery Stock.

Woodview Nurseries

Want every reader of the Fruit-Grower to have one of their catalogues. Write now. If we had your address we would write to you. We have the "Sweepstakes" in trees for the orchard.

Woodview Nurseries

Box 102 Uriah, Pa.

Strawberry Plants

We are now shipping Strawberry Plants to Western and Southern Planters. Lady Thomu-Crescent, Michel's Early and Middleton's Early, at $2 per 1,000. Aroma, Brandywine, Bubach, Gandy, at $3 per 1,000. Cash with order.

Plants packed in light covered baskets, with plenty of damp moss. Address all orders to

H. Lightfoot, Chattanooga, Tennessee

AUSTIN'S DEWBERRY

The most profitable of all dewberries. Original propagator and introducer. Jordan Blackberry and New Cardinal Raspberry. Keep the money coming. Write for descriptive circular and prices.

J. W. AUSTIN, PILOT POINT, TEXAS

WE PAY THE FREIGHT

Our prices are right and show just what the goods cost you at your R. R. station or express O. Send at once for new descriptive price list.

New Haven Nurseries, New Haven, Mo.

LACON NURSERIES AND FRUIT FARM

APPLE ROOT GRAFTS

Best and Cheapest. Whole and Piece Root, 100 varieties; also Pear, Plum and Cherry grafts Get our prices now. APPLE TREES, 1 and 2 year sizes, 2 to 3 ft., and larger, good assortment. CHERRY TREES, mainly Early Richmond, 2 to 3 ft. and 3 to 4 ft. Cheap for early fall shipment.

H. E. ROWLEY, Lacon, Illinois.

Poultry Department

Our Winter Laying Hens.

Our winter laying hens must be fed or we get few or no eggs at this season of the year. But care must be exercised that we do not over-fatten them at this period by too heavy feeding. It is one thing to feed well and quite another to overfeed.

While it is important that the winter quarters should be tight overhead, so that snow and rain cannot beat into the house, it is also important that plenty of fresh air may be allowed them while inside. It is also well to see to the ventilating of the buildings, as this is a very important question.

Fowls in contracted quarters will become ill from breathing the impurities exhaled from their own bodies and from the foulness invited from the drorppings. Roup is thus engendered often when the cause of the breaking out of this dread disease is least expected.

Our laying stock that we look to for our winter eggs must not be subjected to this unwholesome and sickening atmosphere. Only hens that are in good health will lay at any season. If they are kept under these conditions, they cannot be expected to lay.

At the same time, they should be judiciously fed and have a good variety of egg-producing food.

By good care our hens will give us eggs in winter time if we have a good breed and select from them early hatched pullets that have not laid out a litter in the early fall.

Change Your Stock.

To those who understand the deterioration of stock from breeding in-and-in we hardly need to give the advice which follows in this article. But many poultry raisers have had little or no experience in the care of domestic animals of a larger growth and consequently have had no occasion to inform themselves of the general or of the particular rules that govern stock raising. These well defined rules apply in a greater or less degree to all farm animals and include the feathered tribe as well as the bovine and other species of beasts that seem to come more directly under the head of domestic animals.

Among the essential points in relation to the management of all of these creatures, and which must be understood and acted upon by all successful stock raisers are, proper and sufficient food, kind treatment, regularity in supplying daily returning wants, and care that by judicious crossing and the infusion of good foreign blood, the "standard of excellence" is from year to year raised instead of being lowered. And we believe that nowhere do these rules, especially the last, apply with greater force than with poultry.

Affinity or blood relationship is more ruinous among breeding birds than in any other cases, because their prolificness is much greater than that of larger animals, and before you are aware of the fact, the whole flock is adulterated and the whole character of the stock is physically and even mentally demoralized.

We have seen the product of in-and-in breeding almost idiotic in appearance and entirely void of the bright, stirring qualities which distinguish healthy birds whose blood, by proper crossing, has been kept pure and strong.

Birds bred in-and-in are also more liable to disease and far less able to combat any unhealthy tendencies in location and temperature. They grow "small by degrees and beautifully less," until many a man has given up in despair under the mistaken idea that for some mysterious reason his place was not adapted to the profitable handling of poultry.

At the present day the interchange of eggs for hatching and stock for breeding purposes cannot fail of being a greater help in this direction, provided in-breeding has not been followed too long.

Those who do not attempt any "fancy varieties" can still keep their flocks in good health generally and improve their stock by exchanging birds with their neighbors.

Sterility is a still further evil consequence of this in-and-in breeding. With the system faulty in these directions, it is not to be expected that the laying qualities should escape injury.

Only good-blood in strong, healthy bodies will repay their owner's care by a liberal supply of fresh eggs and in production of chicks whose vitality shall make them equal to all demands.

Practical Pointers.

It takes a hen about 90 days to moult.

Remember always that over-feeding is not well feeding.

Hardiness is an important factor in growing market poultry.

Always have a system about your work. It will make it much easier.

Buckwheat is a fine egg producer, but fed regularly it is too fattening.

Ducklings, if crowded in their pens, soon learn the vice of feather pulling.

Your hens that moult early are the ones you can count on for your winter eggs.

The Europeans use barley as a poultry feed, and claim it is valuable as a variety.

A good, strong, fertile egg contains sufficient moisture to exclude the chick or duck.

The dust bath in winter should be located where it will get all the sunshine possible.

The hen, after laying an egg, needs a drink of water. See that it is always accessible.

A poor brooder will kill chicks or ducks much faster than a good machine can hatch them.

As fowls have no organs for mastication, their food must be prepared for digestion in the gizzard.

We always shut our breeding ducks in their pens at night, giving each pen a gas light to keep them quiet.

If wanted for beauty and eggs, there is none better than the Black Lanshans with their black, shiny coats.

Eggs for hatching purposes should be kept at a temperature of 55 to 60 degrees and turned one-quarter over every other day.

Never place chicks hatched in an incubator with those hatched under a hen, on account of spreading lice among the flock.

Now is the time to prepare quarters for your laying stock for the coming winter. See that they are proof against night marauders.

We do not advise putting sawdust on the poultry house floors, as it adheers to any soft feed that may fall out of the feed troughs.

Roup, which is often mistaken for cholera, is a disease having different forms and is caused generally by draughts of air on the birds at night.

Hens in confinement must certainly be made to scratch. A failure to enforce this rule will prove disastrous to the health of your birds as well as the eggs crack.

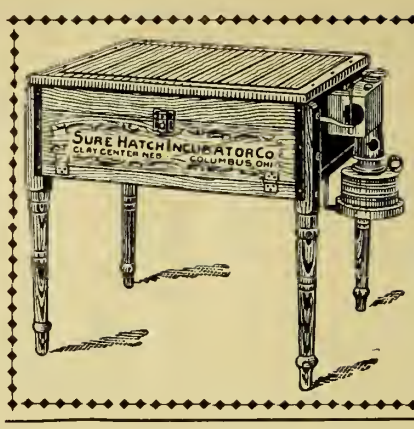
Hatching the eggs is not the hardest part of the game. Any first class machine will do this if your eggs are right and the machine is given reasonable attention.

Nearly all breeders of experience have learned to their sorrow that over-fat birds are undesirable, and in many cases absolutely worthless to lay fertile eggs.

You will find a large number of poultry men, experienced men at that, who insist on feeding their laying stock a warm mash each morning, and then wonder why their eggs do not hatch well.

All soft food should be seasoned with a little salt. Fowls need salt the same as human beings. The old theory that it is dangerous to use salt in any soft feed fed to poultry is a delusion.

Ducks, especially the Pekin variety, will thrive as breeders almost as well without water to bathe in as with it.



The Most Live Chicks

From a Tray Full of Eggs.

That's what you want and you get it if you use a SURE HATCH INCUBATOR.

Made of the best material and guaranteed for ten years. Sold on thirty days trial and the price within reach of all poultry raisers.

A Regulator that regulates under all conditions. It comes already attached and connected. No complications to get out of order. The question of good hatches is merely a question of fertile eggs.

OUR NEW CATALOGUE is FREE. Contains poultry and egg record tables for a year, incubation tables and dozens of other things of value to the poultry raiser. Nearly 200 illustrations showing the SURE HATCH in operation in different parts of this and foreign countries.

Why pay two prices for Incubators and Brooders? Why try experiments or out-of-date machines? Why take chances? Address nearest house.

SURE HATCH INCUBATOR CO.

Clay Center, Nebr. Columbus, Ohio.

Counting Chicks Before Hatching

is not safe unless you have an

IOWA ROUND INCUBATOR

R. C. Bauerminster, Norwood, Minn., got 493 chicks from 503 eggs. He followed directions, the machine did the work, because it was built on right principles and by good workmen. The **IOWA** has fiber-board case, does not shrink, swell, warp or crack. Regulation and ventilation perfect. Our free book gives more testimonials and full particulars. Everything about incubation free.

IOWA INCUBATOR COMPANY, BOX 192, DES MOINES, IOWA

The WOODEN HEN

A high-class self-regulating incubator on a small scale. Fifty egg capacity. Heat, moisture and ventilation automatically and perfectly controlled. Price only $6.80.

Send for the **Wooden Hen Book**; mailed free, together with a book containing 14 colored views and telling all about the **EXCELSIOR INCUBATOR**, if you name this paper.

GEO. H. STAHL, Quincy, Illinois.

The Successful

poultryman uses a

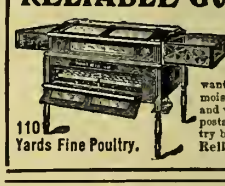
SUCCESSFUL Incubator and Brooder,

the kind that brings big hatches and does not go to pieces from heat and moisture. The best built machines on the market. Perfect system of regulation. Get our big incubator book (156 pages) free. Other books in four different languages. Write for them to-day.

DES MOINES INCUBATOR CO.,

Dept. 553 Des Moines, Ia., or Dept. 553 Buffalo, N. Y.

RELIABLE GUARANTEED.



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110 Yards Fine Poultry.

Reliable Inch. and Brooder Co., Box B 159, Quincy, Ill.

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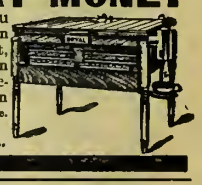


for an incubator you have not tried, when you can get the best, the **Royal Incubator**, on 30 days free trial. It is entirely automatic and certain in results. Try one. Catalogue free.

ROYAL INCUBATOR CO.,

Dept. 553 Des Moines, Iowa.

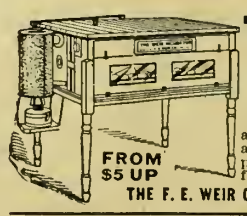
POULTRY PAYS

when the hens lay. Keep them laying. For hatching and brooding use the best reasonable priced Incubators and Brooders — built upon honor, sold upon guarantee,

Send for Free Catalog

THE ORMAS

L. A. Banta, Ligonier, Indiana



THE WEIR INCUBATORS AND BROODERS

are up-to-date, well-built and low-priced. We sell poultry supplies too. Send for our Incubator Book.

FROM $5 UP

THE F. E. WEIR COMPANY, LIGONIER, IND.

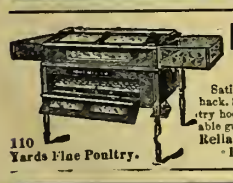
EASY MONEY

is made by installing a **Hawkeye Incubator.** Little cost, little care, results sure, profits large. **30 Days' Free Trial.** Catalogue free. Mention this paper.—**Hawkeye Incubator Co., Box 28, Newton, Iowa.**

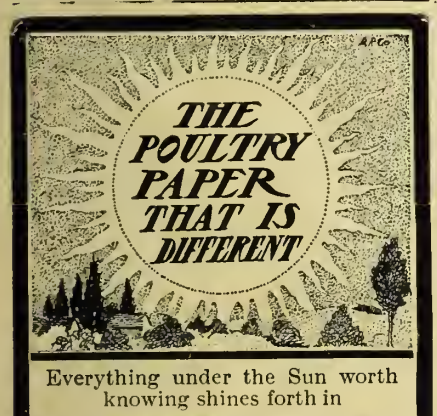
THE HUMPHREY

CHEAP EGGS
Green bone costs almost nothing, but beats the world as an egg producer. Get a
Humphrey
Green Bone and Vegetable Cutter
and double your poultry profits. Brings more eggs and more fertile eggs. Sold on a positive guarantee to cut more bone, in less time, with less labor and in better condition than any other machine. The only open hopper, free from troublesome partitions; feed under operator's control; only three working parts; no complicated springs to get out of order. Try a Humphrey and be convinced. Our trial offer is *really* free. Send for handsome catalogue and special offer.
HUMPHREY & SONS, BOX 123 JOLIET, ILL.
WESTERN AGENTS { SURE HATCH INCB. CO., Clay Center, Neb. PETALUMA INCUBATOR CO., Petaluma, Cal. PORTLAND SEED CO., Portland, Ore.,

GET A DANDY
BUSHELS OF EGGS follow the feeding of cut bone. The
DANDY Green Bone Cutter
is the simplest, fastest and easiest bone cutter made. Price $5.00 up. Sold on 15 days trial. Satisfaction or no sale. Send for price book and *Special Proposition*.
Stratton Mfg. Co., Box 56, Erie, Pa.



RELIABLE
INCUBATORS and BROODERS.
Satisfaction guaranteed or your money back. Send 10 cents postage for great poultry book just issued, explaining remarkable guarantee under which we sell.
Reliable Incubator & Brooder Co., Box B-159 Quincy, Ill.
110 Yards Fine Poultry.



Everything under the Sun worth knowing shines forth in
COMMERCIAL POULTRY
(The Poultry Paper That is Different)
1 YEAR 24 TIMES 50 CENTS
Send us name and full address on a postal and see how good it is. Free if you mention this paper.
DRAPER PUBLISHING COMPANY
Dept. C-7 Chicago, Ill.
N. B.—You can make good money representing the "DRAPER TRIO." Write today for terms. Our great prize contest is on, and you will be just in time if you write quick.

PHILIPPINO WATER PLANT.
Unfolds in water into a beautiful fern leaved plant. Revives and becomes fresh as ever after years of drying. Sample postpaid, 25c. Live agents wanted, cash paid for services. Fine nursery catalogue for 2 cent stamp. Write to-day.
The Gardner Nursery Co., Box 132 Osage, Iowa.

P. B. ROCKS AND BUFF ORPINGTONS
Fine stock and eggs for sale. Write for prices.
CROWN HILL FARM, Trenton, Tenn.
J. R. DEASON, Propr.

Ducklings, too, thrive much better with only sufficient water in their troughs to drink. Access to bathing water makes their feathers tough.

Do not feed cayenne pepper, as it is too powerful a stimulant. Fowls, when too highly stimulated, often die of liver trouble.

The man who will allow his poultry, ducks, turkeys and geese, to run in the same flock does not evidently know the harm such company is to each other.

Be very careful to have your coops tight, so as to exclude rats, etc., for when given full sway they will often kill enough chicks or ducks in a single night to pay for a dozen rat-proof coops. W. P. LAIRD.

Spray, N. C.

Green Bone for Poultry.

I never fed green cut bone until last fall, when I started early and fed all winter and was more than paid for my trouble with an abundance of eggs. In the month of January I received more eggs than in any other month of the year, but the previous winters the eggs did not pay for the chicken feed. The cost of the green bone is a mere trifle, and it only requires an ounce to each hen about every other day, and it is enjoyed and craved for above all the other foods. A bone mill is as much a necessity to a poultry man as an anvil is to a blacksmith. As an egg producer, a bone producer and a health producer, green bone is unexcelled.—B. H. Sewell, in Farmers' Tribune.

Compared with other foods, we consider green bone the cheapest for the results accruing from its use, of any other food, nearly doubling (as it does) the amount of eggs and very materially increasing their fertility, besides producing a better plumage and maintaining a more healthful condition of the fowls so fed. Therefore, whether from a desire to increase the vigor of the fowl or to develop its egg-producing qualities, we can most heartily recommend the use of green bone, for practical experience, as well as science and chemistry, have undisputably demonstrated that the component parts of its structure afford the highest degree of nutriment and substance for poultry.—Alma Cole Pickering, in Wisconsin Agriculturist.

Some idea of the incubator business is gained when it is known that over 100,000 incubators were sold last year. The use of the incubator and brooder in poultry raising is no longer an experiment. One of the firms that got a goodly share of this business is the Hawkeye Incubator Co., of Newton, Iowa. They were well pleased with their business last year, but to say they are feeling good over the prospects for this year, is to put it mildly. Their advance sales for 1903 already exceed the entire output for last season. The Hawkeye is used in every state in the union, in Canada and in many foreign countries. No wonder, for this company guarantees every machine to give entire satisfaction or your money refunded. They even sell on 30 days' free trial, giving the purchaser time to complete a hatch, before accepting his machine. By all means write to them if you are thinking of buying an incubator or brooder. Address Hawkeye Incubator Co., Newton, Iowa. Mention this paper.

George Christy, Browning, Mo., writes: "I send money for renewal of my subscription, and will say that I cannot get along without the Fruit-Grower. I think every farmer, whether fruit-grower or not, ought to take it. The Fruit-Grower helped us in selling our apples this season, which consisted of 800 barrels, which sold for $1.50 a barrel, No. 1s and 2s."

DECEMBER EGGS.

With the cold snap of December the egg supply usually drops off; not altogether, however, from the actual cold as from change in feeding ration of the hens. At this time more than ever, poultry needs a liberal supply of animal food to take the place of the insects and worms which the hens get on the range in summer time.

The Stratton Mfg. Co., Erie, Pa., have just issued a very attractive book entitled "More Money from Your Hens." It goes into the question of winter feeding very thoroughly and describes in detail the Dandy Bone Cutter, a well built, substantial machine for reducing green bone to poultry food. The manufacturers make a very strong claim of excellence for the Dandy, and sell every machine with a warrantee to take it back and refund every cent paid for it should it prove unsatisfactory in any way after the purchaser gives it a fair trial. The Dandy is an easy turner, a rapid cutter, of large capacity, substantially built with a large receptacle for taking in the bone and an automatic feed device which brings the bone to the knives with the exact rapidity needed for proper cutting. It is sold at a very reasonable price and is manufactured in a variety of sizes and styles. We know that every reader of the Western Fruit-Grower will be interested in the Dandy catalogue. It is sent free.

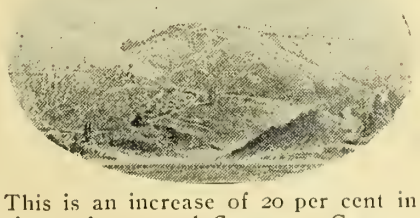
Don't forget to use a little Prickly Ash Bitters whenever the stomach or bowels are disordered. It quickly corrects such troubles and makes you feel bright and cheerful.

Prof. Stinson's Appointment.

Prof. John T. Stinson, director of the Missouri Fruit Experiment Station, Mountain Grove, Mo., has been appointed pomologist of the Louisiana Purchase Exposition, to be held at St. Louis in 1904. Prof. Stinson's appointment will mark the beginning of more aggressive work in this department, and by his help Superintendent Taylor will doubtless arouse the greatest interest throughout the country. The appointment of Prof. Stinson will give particular pleasure to Missouri fruit-growers, for he is one of the best-known and most popular of the younger horticulturists of the state. He is well known throughout the West, especially, having graduated from the Iowa Agricultural College and later having had charge of the horticultural work at the Arkansas Experiment Station.

It Has "Riz."

Those who read the story in the October number of the Western Fruit-Grower of how "John and Mandy Brown" and their friends made a winning in ventures in Arizmo Development Co. stock will be interested in learning that the predictions made in the story are beginning to be realized, the price of the stock having risen to 30 cents per share on the 15th inst.



This is an increase of 20 per cent in sixty days, and Secretary Gregory says the price "will not look like 30 cents very long." Still others of the best business men in St. Joseph are becoming identified with the company and reports from the mine are very encouraging. If interested in the matter, read the ad under the "Brownie and the Safe," elsewhere in this issue. The above cut is a good representation of the property.

Will Erect Storage Plant.

At the late meetings of apple growers throughout the country the subject of more storage plants was discussed, and the opinion was expressed by some that the growers will have to erect plants for themselves in some locations. That steps to this end are being taken is shown by the following from W. E. Carlin, president of the Jerseyville (Ill.) Fruit-Growers' Association:

"An increased interest in fruit growing is being manifested in this section. We now have over 600 acres of commercial orchards, and preparations are being made for planting more the coming year. Besides, this is a good locality for the production of milk and butter, there being plenty of blue grass pasture. Poultry is also raised in large quantities. To secure the best results from these and other products our people have in view the establishment of an ice and cold storage plant. Will you please put us in communication with the parties who furnish the necessary machinery and appurtenances for such an establishment, to cost not exceeding $35,000, complete and ready for operation?"

Farms for Sale

There are many readers of the Western Fruit-Grower, perhaps, who wish to sell a portion of their land, that they may give better attention to the remainder; and there are many others who want to buy lands of various kinds. This department is established to bring these two classes together. If you want to buy a farm, or if you have one for sale, use this department.

No display type will be used in this column. All ads of farms for sale, of farms wanted, which are intended for this column, will be inserted for 2 cents a word, each insertion. The address must be counted as a part of the advertisement and each initial and number must count as a word. Owing to the low rate, no ads for this department will be charged, but cash must accompany order. Count the words and send two cents for each word in your ad.

WESTERN FRUIT-GROWER,
St. Joseph, Mo.

For Sale—Lone Pine Fruit Farm; 100 acres; 2½ miles from Salem; 45 acres in apples, peaches, pears, cherries etc.; best varieties, in prime condition; comfortable buildings Price only $50 per acre, half cash, balance to suit, or will consider well located residence property as part payment. Frank Pellett, Salem, Missouri.

31 ACRES AT A BARGAIN—Three-fourths mile west of Grandview, Kansas City, Kansas; 5 to 15 minutes' walk of three street car lines; 6 room house, good barn, outhouses, fences and water; 1,000 peach, 150 apple, 125 pear, 150 wild goose plum, 85 cherry, 1,000 grapes, 600 currants, strawberry, blackberry, etc. All bearing. Ground fresh. Price $8,000; will double in value soon. Owner on property. L. L. L. Hanks, Kansas City, Kansas.

FOR SALE—My irrigated farm; $2,000.00 in irrigation plant and other improvements. Ideal location close to growing city of 10,000 people, on Wisconsin River. Principal growth is towards this property. Land now selling at $350 per acre in lots within 100 rods. Fine air, pure water, no malaria. Will take $3,000 cash and include team, farm tools, 10 tons hay, 15,000 strawberry plants, etc. Title perfect. Geo. H. Patch, 824 Wis. ave., Stevens' Point, Wis.

FOR SALE—98 acres of fruit land in the Uncompahgre valley, 12 acres orchard, 30 acres alfalfa; balance under plow. Perpetual water right, delightful climate, rich soil and good market; 2 dwelling houses; well equipped poultry plant for 500 hens; $2,000 Chattels. Six miles south of Montrose; ¼ mile from railroad station; ¾ mile from school. Will pay 20 per cent per year on investment. Satisfactory reason for selling at once. Price, with chattels, $10,000; without chattels, $8,000. BARTON W. MARSH, Montrose, Colo.

FOR SALE—65 acre fruit and grain farm, with good house and barn and other improvements and large commercial bearing Ben Davis orchard. No waste land. A good income farm. Near Greenville, Ill. $1,700 down and balance $1300 on long time. Address Box 482, Greenville, Illinois.

MISSOURI FARM FOR SALE—310-acre farm in Clinton County, Mo., in midst of best blue-grass section, for sale for $14,000. Farm is 5½ miles southeast of Lathrop, ½ mile northwest of Converse, on A., T. & S. F. Ry.; 30 acres timber, balance suitable for grass or cultivation; young family orchard; good new house of 7 rooms, large barn, cattle pens and sheds, windmills, tanks, etc.; on rural telephone line. This farm is in section where crop failure is unknown, and land is appreciating in value rapidly. Address G. W., care Western Fruit-Grower, St. Joseph, Mo.

FOR SALE—On account of ill health, or will trade for good fruit farm, a valuable business. Address B, care this paper.

FOR RENT—Fruit, grain and stock farm in Southeast Nebraska; near station; about 185 acres, 50 acres in orchard. Will rent to right man with teams and help. A number of farms to sell. HENRY C. SMITH, Falls City, Neb.

FARM FOR SALE—Estate land for sale; choice tract of 377 acres, $5,665; easy terms; Taneyville, Mo. Address Mrs. Jonas Miller, Wapello, Iowa.

FOR SALE OR EXCHANGE—Bearing five acre orange grove, one mile railroad town, 250 miles south of Jacksonville, Fla.; five-room house and barn. Had over four hundred boxes last year. Very cheap. H. F. Davis, Holland bldg., St. Louis, Mo.

Good Government land under co-operative irrigation. For particulars address COLORADO CO-OPERATIVE COMPANY, Pinon, Montrose Co., Colorado.

OKLAHOMA LANDS
Are rapidly appreciating in value. If you are thinking of buying a farm in a good wheat country, write to me or call and see me at the nursery. I know of a few good farms for sale that are bargains.
F. B. Orton, Kiowa, Kan.

The CYPHERS INCUBATOR
Is the Standard Hatcher of the World

Self Supplied Moisture
Used with uniform success on twenty-six Government Experiment Stations in the U. S., Canada, Australia and New Zealand; also by America's leading poultrymen and many thousands of persons in every walk of life. Guaranteed to give satisfaction or price refunded. The original and only genuine non-moisture incubator, fully covered by patent. Winner of
Gold Medal and Highest Award at the Pan-American
Oct., 1901. Illustrated, descriptive, 16 page circular Free. Complete catalogue containing 180 pages, 8x11 inches in size, for 10c in stamps to pay postage. Illustrates over 100 of America's largest and most successful poultry plants. Ask for Book No. 157 and address nearest office.
Cyphers Incubator Co. BUFFALO, N. Y., CHICAGO, ILL. BOSTON, MASS., NEW YORK, N. Y.

"THE HIAWATHA" Is the most successful hatcher. Its wonderful success and popularity is due to superior construction and its scientific principles of heat and ventilation. IT NOT ONLY HATCHES GOOD STRONG CHICKS, BUT LOTS OF THEM. Our machines are guaranteed—your money back if you are not satisfied. They are strictly high grade in every detail. A first-class machine at a reasonable price. Send for our catalogue. It is free.
"THE HIAWATHA" MFG. CO., Hiawatha, Kas., U. S. A.

FEED COOKER AND ROOT CUTTER.
Our Stock Food Cooker and Root Cutter in excellence and amount of work, surpass all other machines of that character on the market. Peculiarly adapted to the necessities of the poultryman and feeder, either large or small. Perfect service at low prices. Send 10 cents for postage on No. 19 new 20th Century Catalog. THE RELIABLE INCUBATOR & BROODER CO., Box B-159, Quincy, Ills.

FIRE DID LITTLE DAMAGE.

A letter from Mr. Grant M. Curtis, secretary of the Cyphers Incubator Company, states that the fire which broke out in their plant December 6 did not in any way interfere with the filling of orders. While the damage was considerable, when compared with the total plant of this institution it was really slight. The principal damage was done to one of the warehouses, in which poultry supplies and parts of incubators were stored. The loss was fully covered by insurance. Mr. Curtis states that the Cyphers Company has prepared for an unprecedented business, and all orders will be filled promptly.

OUR PREMIUM PAGE

LOOK OVER THIS LIST OF GOOD BOOKS

They will be sent for cash or as Premiums for New Subscribers

The Western Fruit-Grower has arranged a premium list for its readers which will appeal to all fruit farmers, for nothing is offered which is not needed on every fruit farm. We ask that every item be read, for you are almost sure to find something you need.

While the articles will be furnished for cash at prices named, it is really a better plan to get them as premiums for new subscribers. For instance, a book which will cost $2.50 cash can be secured for seven new subscribers at 50c each; in other words, the book alone costs $2.50, while if it is secured as a premium it and the seven new subscriptions will cost only $3.50. And so on through the list. Get up a club and secure valuable premiums free.

Farm and Garden.

LAND DRAINING—By Many Men. $1.00.
THE NEW RHUBARB CULTURE—By J. E. Morse and G. B. Fiske, 50 cts.
IRRIGATION FARMING—By Lute Wilcox, $1.50.
MUSHROOMS: HOW TO GROW THEM—By Wh. Falconer, $1.00.
HOW CROPS FEED—By Prof. Samuel W. Johnson, $1.50.
INSECTS AND INSECTICIDES—By Prof. C. M. Weed, $1.50.
AMERICAN FARM BOOK—By Richard L. Allen, $2.00.
CHEMISTRY ON THE FARM—By Prof. R. Warrington, $1.00.
FARM DRAINAGE—By Judge French of New Hampshire, $1.00.
ONIONS: HOW TO RAISE THEM PROFITABLY—By seventeen practical growers, 20 cents.
FARM POULTRY—By Geo. C. Watson, $1.25.
FARM GARDENING AND SEED GROWING—By Francis Brill, $1.00.
SUCCESS IN MARKET GARDENING—By W. W. Ransom, $1.00.
BOMMER'S METHOD OF MAKING MANURES—By Geo. Bommer, 25 cents.
CABBAGE, CAULIFLOWER AND ALLIED VEGETABLES—By C. L. Allen, 50 cents.
GARDENING FOR OLD AND YOUNG—By Joseph Harris, $1.00.
HOW THE FARM PAYS—By Wm. Crozier and Peter Henderson, $2.00.
MONEY IN THE GARDEN—By P. T. Quinn, $1.00.
MARKET GARDENING AND FARM NOTES—By Burnett Landreth, $1.00.
FOREST PLANTING By H. Nicholas Jarchow, $1.50.
SOILS AND CROPS OF THE FARM—By Geo. E. Morrow and Thomas E. Hunt, $1.00.
THE YOUNG MARKET GARDENER—By T. Greiner, 50 cents.
HOW TO MAKE THE GARDEN PAY—By T. Greiner, $2.00.

Flowers.

GREENHOUSE CONSTRUCTION—By Prof. L. R. Taft, $1.50.
GREENHOUSE MANAGEMENT—By Prof. L. R. Taft, $1.50.
BULBS AND TUBEROUS ROOTED PLANTS—By C. L. Allen, $1.50.
PARSONS ON THE ROSE—By Samuel B. Parsons, $1.00.
LANDSCAPE GARDENING—F. A. Waugh, 50 cents.
THE ROSE: ITS CULTIVATION, VARIETIES, ETC.—By H. P. Ellwanger, $1.25.
THE WINDOW FLOWER GARDEN—By J. J. Heinrich, 50 cents.
HEDGES, WINDBREAKS, SHELTERS AND LIVE FENCES—By E. P. Powell 50 cents.
PRACTICAL FLORICULTURE—By Peter Henderson, $1.50.
ORNAMENTAL PLANTS AND HOW TO SUCCEED WITH THEM—By Lizzie F. Hillhouse, $1.00.

SPECIAL OFFER

Every farmer needs a copy of Prof. L. H. Bailey's "Horticulturist's Rule Book." This book is well printed, 312 pages, with 2,000 entries completely indexed so that they can be found in an instant. It contains distances for planting trees and seeds, with quantity per acre at given distances; tells how to make grafting wax, spray mixtures of all kinds, whitewash, etc.; tells how to fight a troublesome insect or fungus disease—in short, this work has all the rules and formulas which a farmer should know along this line, and which he has trouble to remember.

The Western Fruit-Grower has had a special paper-bound edition of the "Horticulturist's Rule Book" printed especially for its readers, and offers a copy, postpaid, together with a year's subscription to the Fruit-Grower, for only 75 cents.

This special edition is identical with the one advertised in the accompanying list, except that it is paper-bound instead of being bound in cloth.

In order to secure this book, however, subscription must be paid for a year in advance. Old subscribers can secure it for 25 cents by paying their subscription in advance, and new ones by sending 75 cents for a year's subscription and a copy of the Rule Book.

This is the best offer of this kind, we believe, that has ever been made. Remember

Horticulturists' Rule Book / Fruit-Grower (one year) — Both 75c

Horticulture.

PLUMS AND PLUM CULTURE—By F. A. Waugh, $1.50.
FRUIT HARVESTING, STORING, MARKETING—By F. A. Waugh, 250 pages, $1.00.
PEAR CULTURE FOR PROFIT—By P. T. Quinn. Illustrated. Cloth, 12mo, Price, $1.00.
THE NUT CULTURIST—By Andrew S. Fuller. A treatise on the propagation, planting and cultivation of nut-bearing trees and shrubs adapted to the climate of the United States. 12mo, cloth $1.50.
PEACH CULTURE—By Hon. J. Alexander Fulton. The best work on peach growing. It has been thoroughly revised and a large portion of it rewritten, bringing it down to date. Cloth, 12 mo., $1.00.
SMALL FRUIT CULTURIST—By Andrew S. Fuller. The book covers the whole ground of propagating small fruits, their culture, varieties, packing for market, etc. Cloth, 12mo., $1.00.
GRAPE CULTURIST—By A. S. Fuller. This is one of the very best works on the culture of the hardy grapes. Cloth, 12mo., $1.50.
STRAWBERRY CULTURIST—By Andrew S. Fuller. Containing all information necessary to enable everybody to raise their own strawberries. Fully illustrated. Flexible cloth, 12 mo., 25 cents.
AMERICAN FRUIT CULTURIST—By John J. Thomas. Containing practical directions for the propagation and culture of all the fruits adapted to the United States. $2.50.
QUINCE CULTURE—By W. W. Meech. An illustrated handbook for the propagation and cultivation of the quince, with descriptions of varieties, insect enemies, diseases and their remedies. New and enlarged edition. Cloth, 12 mo., $1.
THE CIDER MAKER'S HANDBOOK—By J. M. Trowbridge. A complete guide for the making and keeping of pure cider. Fully illustrated. Cloth, 12mo., $1.
THE PRACTICAL FRUIT-GROWER—By S. T. Maynard. Just what the beginner needs and the successful fruit man practices. Illustrated, cloth, 50 cents.
THE FRUIT GARDEN—By P. Barry. A standard work on fruit and fruit trees. Colth, 12mo., $1.00.
IRRIGATION AND DRAINAGE—Principles and Practice of Their Cultural Phases. By F. H. King, professor of agricultural physics in the University of Wisconsin. 502 pages, 163 illustrations. $1.50.
THE PRINCIPLES OF VEGETABLE GARDENING—By L. H. Bailey, Cornell University. Pages, 456; illustrations, 144. $1.25.

Rural Science Series.

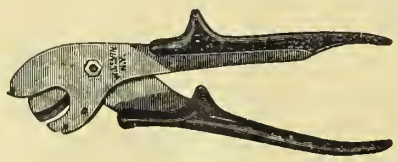
THE PRINCIPLES OF AGRICULTURE—A text-book for schools and rural societies. Edited by L. H. Bailey, with contributions from his colleagues in the Cornell University. Third edition, 300 pages, 92 illustrations, $1.25.
THE SPRAYING OF PLANTS—By E. G. Lodeman, late instructor in horticulture in the Cornell University. 399 pages; 92 illustrations. $1.00.
THE PRINCIPLES OF FRUIT-GROWING—By L. H. Bailey, professor of horticulture in the Cornell University. Third edition; 516 pages; 120 illustrations. $1.25.
BUSH FRUITS—A horticultural monograph of Raspberries, Blackberries, Dewberries, Currants, Gooseberries and other shrub-like fruits. By Fred W. Card, professor of horticulture in Rhode Island Agricultural College. Second edition; 537 pages; 113 illustrations. $1.50.

Garden Craft Series.

THE HORTICULUTRIST'S RULE BOOK—A Compedium of Useful Information for FruitGrowers, Truck Gardeners, Florists and Others. By L. H. Bailey, professor of horticulture in the Cornell University. Fourth edition, 312 pages; 75 cents.
THE NURSERY BOOK—A Complete Guide to the Multiplication of Plants. By L. H. Bailey, professor of horticulture in the Cornell University. Third edition; 565 pages; 152 illustrations. $1.
PLANT BREEDING—Being five lectures upon the Amelioration of Domestic Plants. By L. H. Bailey, professor of horticulture in the Cornell University. 293 pages; 20 illustrations, $1.00.
THE FORCING BOOK—A Manual of the Cultivation of Vegetables in Glass Houses. By L. H. Bailey, professor of Horticulture in the Cornell University. 266 pages. 88 illustrations, $1.00.
THE PRUNING BOOK—A Monograph ot the Pruning and Training of Plants as applied to American Conditions. By L. H. Bailey, professor of horticulture in the Cornell University. Third edition; 545 pages; 331 illustrations. $1.50.
GARDEN MAKING—Suggestions for the Utilizing of Home Grounds. By L. H. Bailey, aided by L. R. Taft, F. A. Waugh and Ernest Walker. Fourth edition; 417 pages; 256 illustrations. $1.00.
THE PRACTICAL GARDEN BOOK—Containing the Simplest Directions for the Growing of the Commonest Things About the House and Garden. By C. E. Hunn, gardener to the horticultural department of Cornell University, and L. H. Bailey. Second edition; 250 pages; many marginal cuts. $1.00.
LESSONS WITH PLANTS—Suggestions for Seeing and Interpreting Some of the Common Forms of Vegetation. By L. H. Bailey, professor of horticulture in the Cornell University. Second edition; 491 pages; 446 illustrations; half leather; 12mo., $1.10 net.
THE SURVIVAL OF THE UNLIKE—A Collection of Evolution Essays Suggested by the Study of Domestic Plants. By L. H. Bailey, professor of horticulture in the Cornell University. Third edition; 515 pages; 22 illustrations. $2.00.
THE EVOLUTION OF OUR NATIVE FRUITS—By L. H. Bailey, professor of horticulture in the Cornell University. 472 pages; 125 illustrations. $2.00.
THE CYCLOPEDIA OF AMERICAN HORTICULTURE—By L. H. Bailey, of Cornell University, assisted by Wilhelm Miller and many expert cultivators and botanists. Four volumes; over 2,000 original engravings. Price, per volume, cloth, $5.00.

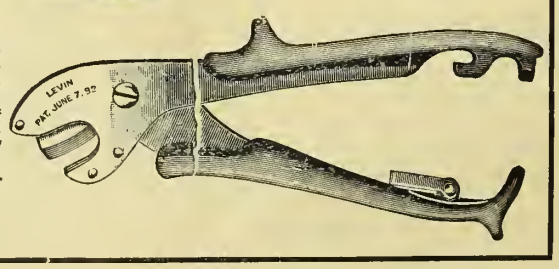
Pruning Shears Free

Most of the readers of the Western Fruit-Grower need a pair of good pruning shears. To all such we furnish the Levin Pruner in two sizes, either as premiums or for cash. The accompanying illustration shows the two sizes. No. 1 weighs 7½ ounces, and will cut a half inch stick of dry oak. No. 2 weighs 13 ounces and will cut a three-quarter-inch stick of seasoned oak. The cut is made smooth and clean by both of these pruners, and they are remarkably strong for their weight—in fact, we know of commercial grape growers who use even the lighter size for pruning their vineyards, owing to the lightness of the tool and the effectiveness of its work.



Pruner No. 1 will be sent for two new subscribers at 50 cents each or will be sent post paid for 75 cents cash.

Pruner No. 2 will be sent free for three new subscribers at 50 cents each, or will be sent post paid for $1.00 cash.



Address all orders to WESTERN FRUIT-GROWER, St. Joseph, Mo.

Prosperity in Missouri.

As the days are growing short, we are reminded that we are nearing the close of a prosperous year. Although it has been very wet in these parts and a great amount of hay was spoiled, there will be enough and to spare. The corn crop is very fine, especially on rolling or well-drained land. Our fruit crop was very poor, owing to the great drouth of last summer, but the prospects are flattering for a fine berry crop next year; the strawberry rows are such a mat of fine plants. Late gardens have been fine, and we have green beans, so tender and fine, and tomatoes are still in bloom. The row of hardy annuals in the garden is quite gay, with not enough frost up to November 19 to spoil the color of the zenia or marigolds. Such a row in the middle of the vegetable garden is a great pleasure to the weary cook. As we go out to get the noon supply of vegetables, we always have time to walk along that row and see what new has opened, and the cost is so small and requires but little extra work, as the row is plowed with the vegetables. At present our monthly roses are loaded with bud and bloom, so large and fragrant it reminds us of what we saw in California, such magnificent flowers, ours look like pigmies among giants, but we looked at the beautiful flowers until we were satisfied.

Now, as the big loads of white and yellow corn are coming in, it looks like living. If we haven't oranges, lemons and great fragrant magnolias, we have the staff of life.

Our farmers' institute was held in our town a few weeks ago. The lectures were good and interesting, but we women folks listened eagerly for a word along the line of civic improvement, but not a word. A little encouragement and a few suggestions might be of lasting good to the farmers' home, as we understand that the ideal home is more than four walls.

MRS. M. E. LAUGHLIN.
Foster, Mo.

Kansas City Nurseries

Located in the center of commerce, railroad facilities to nearly every point in Missouri, Kansas and other states without change or transfers. Good first class Fruit and Ornamental Trees, Shrubs, Roses, Vines, etc. A very large assortment for the City and Country trade. Write for our eighty-page descriptive catalogue. Address

BLAIR & KAUFMAN,
233-34 Rialto Building, Kansas City, Mo.

When writing to advertisers mention the Western Fruit-Grower.

(Continued from Page 4.)

was more plentiful. For instance, the diseases was worst where the dew remained on the grass and leaves until late in the morning.

Prof. Bruner of Nebraska, delivered a most interesting address on insects affecting the apple tree and fruit. About 400 of these insects are known to exist, said Prof. Bruner, about 100 of them destructive. Only about a dozen of these insects, however, are found in any one section. One thing of importance in considering insects and how to fight them is the rapidity with which they multiply. An insect which lays 100 eggs at a brood, one brood a year, is one which increases very slowly. There are many others, with several broods a year, which lay a greater number of eggs. But suppose that each apple tree has one of the slow ones mentioned, and it will be seen that how great a pest is even this one. When one considers some of those which increase more rapidly, the result is most appalling. But Prof. Bruner said these insects have enemies which prey upon them and help to keep them in check. He told some of the general characteristics of insects affecting the apple, with suggestions as to how to fight them. Asked if he would advise that apple trees be sprayed while in bloom, he said he would not; that the poison will be apt to kill the bees which visit the blossoms, and it is really useless to spray against the codling moth then, for the moth is not there. Would spray for this insect just as the petals are falling.

One gentleman from Illinois told of a condition which existed in parts of that state this season. The bloom end of the apples looked as though they had been perforated, having the appearance of a pepper box. Another gentleman reported the same condition and they had thought it was the work of the plum curculio.

Prof. Blair said the trouble was due largely to the work of the plum curculio, not in laying the egg, as is the case where the plum fruit is damaged, but the curculio injured the apple while searching for food. After the skin had been punctured by the insect, fungi secured entrance, and damage followed. Two other species of curculio do almost the same work. Prof. Blair reported that the Illinois Experiment Station is outlining some work concerning this injury to the apple.

Mr. Miller of Ohio, reported his experience with spraying. He had sprayed with four ounces of paris green to a barrel of Bordeaux mixture, and a year ago had come to the conclusion that this mixture was too weak, and had increased the dose. Last year he used arsenate of lead, and also combined this mixture with arsenite of soda. Results were most satisfactory. Mr. Cox of Ohio had used this same mixture with excellent results. Mr. Miller said he had tied bands of building paper about the tree, to trap the larvae, and this year, owing to the effectiveness of his spraying, the work did not pay. Previous to this year, however, results have been satisfactory, for he had caught from two to fifteen larvae, or pupae, under each band. He had put the bands on trees the 10th of June, and farther south would put them on earlier.

C. H. Williamson of Quincy, Ill., addressed the meeting on the subject of packing and marketing apples. He made a strong plea for honest packing, and commended the apple growers to the methods of the orange growers of California, who, judged by his box of fruit, is an honest man; but, judged by his barrel of apples, the apple grower is frequently dishonest. Such methods will not tend to build up a market, and in the end the reaction is disastrous to the grower. Mr. Williamson advised that in most cases it is better to dispose of the fruit to regular apple handlers, rather than for the grower to attempt to market it himself. The growing of fruit is one thing, while the marketing of that crop is quite another, and the regular apple dealers are in better shape to handle the fruit, usually. But, whoever sells the crop, Mr. Williamson said, the grower must try his very best to raise an excellent crop of fruit, and see that it is properly packed. He said the market is demanding better quality, and if this kind of fruit is supplied there are not enough apple trees standing today to supply the demand.

Mr. Barnes of Kansas told of the apple-picking sacks used by some of the growers of that state, consisting of a sack, open at both ends. The lower end folds up and attaches to a hook, thus closing the opening there. When the picker has his sack filled he simply unhooks the lower end of the bag and the apples are released, with no bruising or injury of any kind. Mr. Barnes prefers the plan of packing in barrels at a central point, hauling the fruit to this station in wagons with low wheels and wide tires. The low-down wagons are best, because the fruit does not have to be lifted so high, and the wide tires prevent the cutting of the soil in the orchard.

The same subject was discussed by . T. Cox of Ohio, who is a successful grower, making a specialty of Rome Beauty apples.

The convention adjourned to meet in St. Louis in November, 1903. The executive committee will hold a meeting some time during the summer and submit a statement as to the probable apple crop throughout the country, to give growers an idea of what prices should be asked for their fruit. This estimate will be made up from reports sent to the statistician, Prof. John T. Stinson, and the co-operation of all growers is urged to have these reports as complete as possible. As a help to this end those growers present left with the secretary the size and age of their respective orchards, together with varieties, etc. The statistics will be gathered along very much the same lines as the plan outlined by the Western Fruit-Grower last season.

The display of apples at the meeting was very fine. Premiums were liberal, $3 as first premium for single plate, $1 second premium. The exhibit was particularly interesting in showing the difference between same varieties grown in different locations. Among the principal prize winners were B. Stuart, Altoona, Ia., who won the first premium for best and largest display by one grower; A. T. Nelson, Lebanon, Mo., who won the second premium in this class, and who also won more individual plate premiums than any other one person; W. A. Young, Butler, Ill.; H. W. Jenkins, Boonville, Mo.; A. F. Pitt, Jerseyville, Ill.; U. T. Cox, Bradrick, Ohio; H. D. Carroll, Louisiana, Mo.; L. C. Thompson, Paragould, Ark.; G. H. Shepard, La Monte, Mo.; I. D. Snedeker, Jerseyville, Ill.; S. R. Walker, Liberty, Mo.; George Woolsey, Bentonville, Ark.; H. W. Cook, Potosi, Mo.

Before adjournment President Dunlap was appointed to represent the congress in furthering any pure food legislation, state or national, which shall be proposed. F. D. Voris, Neoga, Ill.; E. E. Yaggy, Hutchinson, Kan.; L. A. Goodman, Kansas City, Mo., and U. T. Cox, Bradrick, Ohio, were appointed a committee to devise better methods for shipping apples.

The following resolution indorsing the World's Fair at St. Louis was also unanimously adopted:

"Whereas, it is a fact that the World's Fair to be held in St. Louis in 1904 has been laid out upon a scale that seems sure to exceed in every way any similar exposition ever held; and,

"Whereas, it appears that the space to be devoted to pomological exhibits is twice as great as that ever available at any exposition held in the world; and,

"Whereas, the Department of Horticulture is in the hands of Frederick W. Taylor, a man of the widest experience and in every way fitted to care for the interests of the apple growers of the county; therefore, be it

"Resolved, That the American Apple Growers' Congress heartily indorses the preparations made up to this time and outlined for the future, and urges upon its members that they use every possible means to bring about the fullest possible participation by their respective states and societies."

After the close of the session a number of those in attendance were taken to the World's Fair grounds by F. W. Taylor, chief of agriculture and acting chief of horticulture of the exposition. Mr. Taylor took the visitors to the location of the agricultural and horticultural buildings, which have the most beautiful site of any of the buildings on the grounds. These structures will be erected on a high point overlooking the entire grounds, and the floor level of these buildings will be as high as the cornice of most of the other main buildings of the fair grounds. Mr. Taylor also very kindly took the party to the rooms of the chief designer of the exposition, and all were permitted to look at the advance plans of the agricultural and horticultural buildings, which are just now being completed. These buildings are expected to be, and will be, among the most beautiful on the grounds, permission having been granted to use colors in the treatment of them.

Another feature of the session of the Congress was the annual Shaw banquet at the Mercantile Club on Thursday evening. This banquet was provided by the late Henry Shaw, founder of the Missouri Botanical Gardens, who left a fund to provide a banquet every year to nurserymen, florists and horticulturists. The banquet this year was a most delightful affair, all the more so because of the number of prominient horticulturists in the city. In the absence of Dr. Trelease, director of the Garden, Prof. H. C. Irish presided. Addresses were delivered by a number of horticulturists, and the close at nearly midnight was a fitting end to the first session of the American Apple Growers' Congress, which is calculated to be of great benefit to the apple growers of the United States and Canada.

❦ ❦ ❦

We wish to call your attention to the display ad of Henry Field, the Iowa seedsman who is creating such a stir in the seed trade by his original ideas and straight-from-the-shoulder methods of doing business. Besides his mail business he has gained a great foothold in many localities through local farmer representatives. A farmer or trucker who has some idle time in the winter can make a good thing at it and it is work right in his line. You need not be afraid to go in with him, for Field is O. K. and will do what he says. By the way, he is the man that grew a carload of potatoes on an acre this last summer, but we notice he is too modest to mention it in his ad.

❦ ❦ ❦

The January number of the Western Fruit-Grower will be the finest fruit paper ever issued. We know some of the preceding numbers have been good ones, but speak advisedly concerning next month's number. If you are not now a subscriber, send your subscription today. If you are a subscriber, and your time has expired, renew your subscription today.

TAKE
PRICKLY
ASH
BITTERS
For Indigestion, Constipation, Kidney Troubles.
IT CURES.

STRAWBERRY PLANTS

We have two or three million plants as fine as can be found. All leading varieties: Aroma, Rough Rider, Excelsior, Parker Earle, War-field, Monitor, Splendid, Sample, etc.
OUR RASPBERRY PLANTS are hard to beat. Cardinal, Munger, Nemaha, Kansas, Gregg, Miller Red, etc. Austin Dewberry and Asparagus Plants.

TEN THOUSAND PEACH TREES

Our prices are right. Send for catalogue. Discount on large orders.

ELMHURST NURSERY AND FRUIT FARM, Argentine, Kan., M. E. Chandler, Prop.

STRAWBERRY PLANTS

Our Catalogue tells all about how to grow Early STRAWBERRIES. It's free. Address

North Star Strawberry Plant Farm, Cokato, Minn.

Schulze Trees Fruit

Where Others Fail. Result of
BEST WHOLE-ROOT PROCESS

Planters' guide and fruit book free. Specialties: Apples, Peach, Pear, Cherry and Plum. Offer a car lot selected Seedling Peach of Elberta and Champion, etc. Up-to-date varieties pay: Golden Ben Davis, Black Ben Davis, Delicious, Apple of Commerce, ¼etc. Wholesale direct to planters. Guarantee pedigree stock, true to name.

Schulze Bros., Brussels, Ill., Deer Plain, Ill.

Chattanooga Nurseries

We offer for immediate or this winter's delivery 15,000 heavy 1 year Elberta and Carman Peach; also 30,000 small June buds, Elberta, etc.; 25,000 two year Apple, Jonathan, Gano, Ben Davis, Winesap, etc. All choice, healthy, well grown stock, free from disease, as shown by entomologist's certificate with each shipment. Our Strawberry plants were never finer. Write us for catalogue and prices.

D. W. HUNTER, Proprietor. CHATTANOOGA, TENN.

SPRAGUE CANNING MACHINERY COMPANY

SALES OFFICE:
801 MASONIC TEMPLE, CHICAGO, ILL.

Choicest Fruit and Ornamental Trees,

Shrubs, Plants, Bulbs, Seeds. 40 Acres Hardy Roses. 44 Greenhouses of Palms, Everblooming Roses, Ficus, Ferns, etc. Correspondence solicited. Catalogue Free. 49th Year. 1000 Acres.

THE STORRS & HARRISON CO., - PAINESVILLE, OHIO.

Forest Tree Seedlings

I have from 50 to 150,000 of each of the seedlings named below, which I offer for immediate delivery.

		100	1,000
Catalpas—			
Speciosa (true)	6 to 12 in.	$0.30	$2.00
	12 to 24 in.	.40	3.00
Tea's Japan	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.50	4.00
	4 to 8 ft.	4.00	
Kaemfera	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.50	4.00
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Box Elder	6 to 12 in.	.30	1.50
	1 to 2 ft.	.40	3.00
	2 to 4 ft.	.60	5.00
Black Locust	6 to 12 in.	.30	1.25
	1 to 2 ft.	.40	2.00
	2 to 3 ft.	.50	3.50
	3 to 5 ft.	60	4.50
Red Bud	4 to 6 in.	.20	1.25
	6 to 12 in.	.30	2.50
	12 to 24 in.	50	4.00
	2 to 4 ft.	1.00	8.00
Green Ash, 1 yr.	6 to 12 in.	.30	2.00
	1 to 2 ft.	.40	3.00
	2 to 4 ft.	1.00	9.00
Abies Canadensis—			
Hemlock	6 to 12 in.	.50	4.00
	1 to 2 ft.	1.00	8.00
Juniperus Virginiana,			
Red cedar	6 to 12 in.	.60	3.00
	1 to 2 ft.	1.00	5.00
Horse Chestnut—			
White flowered	6 to 12 in.	.60	5.00
Persimmon—			
American, 1 yr.	6 to 12 in.	.40	3.00
Russian Mulberry	4 to 8 in.	.15	.90
	8 to 14 in.	.25	1.50
	1 to 2 ft.	.40	3.00
Black Mulberry	6 to 12 in.	.40	3.00
	1 to 2 ft.	.60	4.00
Chinese White Wistaria	6 to 8 in.	3.00	
Trumpet Flower	1 to 2 ft.	.50	4.00
Tulip Poplar	4 to 6 in.	.30	1.50
	6 to 12 in.	.40	3.00
Sycamore Plane Tree	4 to 6 in.	.30	1.50
	6 to 12 in.	.40	3.00
Black, or Marsh Willow	1 to 2 ft.	.30	2.50
	2 to 3 ft.	.50	4.00

10 lbs. for $16.00, while they last.

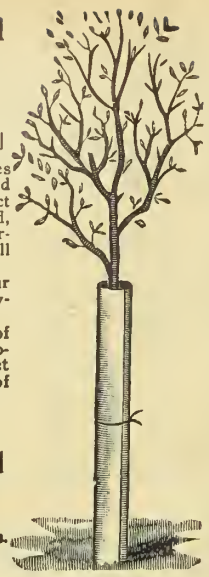
J. H. H. Boyd, Gage, Sequatchie Co., Tenn.

St. Joseph Business University

A Modern, Progressive School, making a Specialty of Bookkeepingg, Shorthand, Typewriting, Penmanship, Telegraphy and all English and Commercial branches. Established in 1879. Well patronized. Students enroll at any time. School in session throughout the year. Catalogue free.

E. E. GARD, Proprietor, St. Joseph, Mo.

We Believe in Protection



TREE PROTECTORS

will protect your trees from rabbits, mice and borers; will also protect the stems from sun scald, and can be left on during the summer, and will not injure the tree.

The cut represents our Tree Protector after having been applied.

Same are made of veneer, and are pronounced the cheapest and easiest applied of anything ever used.

Write for prices.

St. Louis Basket and Box Co.

Second and Arsenal Sts.
ST. LOUIS, MO.

OLDEN NURSERY COMPANY

OLDEN, HOWELL CO., MO.

NEARLY A HALF MILLION APPLE AND PEACH TREES

for Fall, 1902, and Spring, 1903, trade. Prices right and stock the best. All propagation done from bearing trees. Price list will be ready August 1. Entomologist certificate will be furnished with every order. Our leaders are Ben Davis, Jonathan, Ingram, York, Elberta, Emma, Salway and Family Favorite. Address

S. R. Hammond, Mgr. Olden, Mo.

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We have had a most phenomenal growth, starting four years ago with only four pupils, we now have enrolled and in attendance over one hundred pupils. We have placed in good paying positions during that time over three hundred stenographers and bookkeepers in St. Joseph alone.

Before going elsewhere we want you to inquire regarding the reputation of this school. Write for catalogue.

E. M. PLATT, Pres. and Mgr.

SEND TO

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for prices on

RASPBERRY STRAWBERRY PLANTS

CUMBERLAND RASPBERRIES

brought 50 cents crate more than any other. We have plenty of them. Also Kansas, Gregg and Hopkins. Twenty leading varieties of Strawberries, and other small fruits.

HOLSINGER BROS.

ROSEDALE, KANSAS.

SANDUSKY & Co.

GENERAL COMMISSION

Wholesale Fruits and Produce

116 S. Third Street, and 115 Market Square, ST. JOSEPH, MO.

BERRIES A SPECIALTY

Dealers in Berry Box Material, Grape Baskets, Egg Case Material. All kinds of Baskets in stock.

Established 1864.

The Wolverine Nurseries

Have a fine line of Apple, Pear, Plum, Cherry, Peach and Grape, and name very reasonable prices direct to planters. We are the sole introducers of the Famous Gold Mine Peach. Send for description, price and guarantee. Has received highest praise from all who have fruited it.

G. E. PRATER, Jr., Prop.

PAW PAW, MICH

Otwell's TREE PAINT

for 7 years has grown in favor. Millions of trees saved from rabbits in winter and borers in summer. It costs nothing for circulars and terms to agents. The best thing in the world for fruit trees, and you will say so too.

Write W. B. OTWELL, Patentee, CARLINVILLE, ILL.

The Rotting of Apples and Its Control.

In Bulletin No. 93 of the New Hampshire College Agricultural Experiment Station, Dr. H. H. Lamson describes some results of his investigations of the decay of apples and the best means of keeping them sound.

The decay of apples, like the decay of other organic substances, is caused by certain of the lower forms of plant life. Bacteria are the common agents of decay in most substances, but the acid reaction of apple pulp is unfavorable to their development.

Three different species of fungi cause most of the rotting of apples; they are known as the black rot, the bitter rot, and the soft rot. In the first two the pulp remains tolerably firm, turns brown or black, the surface finally becoming studded with minute pimples in which are produced the spores; the second form is characterized by the bitter taste of the pulp. The soft rot is generally lighter in color, the pulp softer, and the surface studded with white or bluish green tufts of spores.

The problem of controlling the rotting of apples is a problem of controlling the growth of the fungus by either preventing the entrance of the spores or by preventing their development. The conditions under which apples are grown and handled makes the prevention of infection difficult or impossible; and no practical means of disinfection, such as may be employed in other cases, have been found. Our best recourse is the employment of cold storage, because temperatures at or near the freezing point are unfavorable to the development of fungi.

In the series of experiments on the control of rotting, the chief points involved were: 1st. A comparison of the efficiency of commercial cold storage with conditions more nearly like those found in an ordinary cellar, and 2d. The effect of wrapping the apples. Bushel boxes of Baldwin apples about half of which were stored in a Boston cold storage warehouse at a temperature of about 34 Fahr. One box per month was withdrawn from storage and the amount of decay noted and compared with the condition of similar boxes of apples in the Station cold storage where the temperture ranged from 40 to 45 during the winter months and from 45 to 50 during the early spring months. Apples returned in January after two months in the Boston storage showed little or no decay, while those in the Station storage showed distinctly more. In March and April the Boston apples showed 20 to 35 per cent more sound ones than those stored at the Station and the 1st of June 60 to 70 per cent more. August 1st 48 per cent of the Boston apples were sound and none at the Station. The indications were that the lower temperature did not injure the keeping quality of the apples after they were returned to a higher temperature. With regard to the wrapping of the apples, the results during the earlier months were not uniform, there being a small percentage in some cases in favor of the wrapped apples. in others in favor of the unwrapped; but in the later months and especially at the higher temperatures there was uniformly a percentage in favor of the wrapped, the percentage ranging from 6 to 40. The indications are that for long keeping wrapping is of decided advantage. Light and heavy waxed paper, tissue paper and newspaper were used for wrapping, and there was but little difference in their effectiveness, newspaper being practically as effective as the more expensive kinds.

Advice on Peach Culture.

J. H. Hale, who is recognized as the peach king of Georgia, where he has orchards with hundreds of thousands of peach trees, and who also has extensive orchards in Connecticut, from both of yields, submitted to the following catewhich he ships the enormous peach chism:

First Question—What is your opinion of the gas tar remedy for peach borers?

Reply—Never mind the gas tar remedy; if the borers get in, dig them out and smash their heads.

Second—What is your opinion as to the value of banking up the trees in June, after digging out the borers, to prevent their gaining access to the lower part of the trunk about the roots?

Reply—Banking the trees not later than May 20, and leaving them banked up until into August, is the easiest way to keep out the borers, but even then you will have to dig a little.

Thrid—Are you troubled much at North or South with peach yellows and digging out the diseased trees? have you found any other remedy than

Reply—We have no peach yellows in our Georgia orchards, and I have never seen a case anywhere in the state of Georgia, although I believe it has occasionally appeared in the mountains of North Georgia. Here in Connecticut we watch for the first signs of the disease and pull up and burn the trees, and probably don't lose more than one per cent of our trees annually; while in nearby orchards, where the rooting out is neglected, the loss is ten to twenty per cent annually.

Fourth—Do you consider bees injurious to peaches?

Reply—Yes, I know that bees do seriously injure peaches, bee experts to the contrary notwithstanding. Perhaps they don't puncture the skin, but many of our luscious early varieties often crack their own skins at ripening time, and bees destroy a lot of fruit that would otherwise go on the market or table in practically sound condition. However, as bees are valuable in assisting pollenization, they probably pay all right for the fruit they destroy.

Fifth—Is there much danger of overproduction of fine specimens of peaches, considering the large plantations being made in the South, West and elsewhere?

Reply—Yes, the present tendency is to over-production in many sections of our country. Just at the present time there are sections of the South and Southwest where Elbertas are being planted by millions, and the supply of this popular variety in two or three years is bound to make a break in the markets, and I look for general demoralization and heavy loss to the Southern peach business for some years to come.

Sixth—Can you state why you prefer large peach trees to smaller trees for planting an orchard?

Reply—I prefer large peach trees because long experience has taught me that they have more vigor stored up in their trunks and heavier roots, and will make very much larger and stronger growth the first year than will smaller size trees. If a man wants to make a commercial orchard, and is after the profits in the business, he had better pay $12 to $15 per hundred for good, healthy, strong peach trees than to have a lighter size given to him for nothing. I have planted nearly three hundred thousand peach trees of all sizes in orchards, and the above statement is based on actual experience and results.

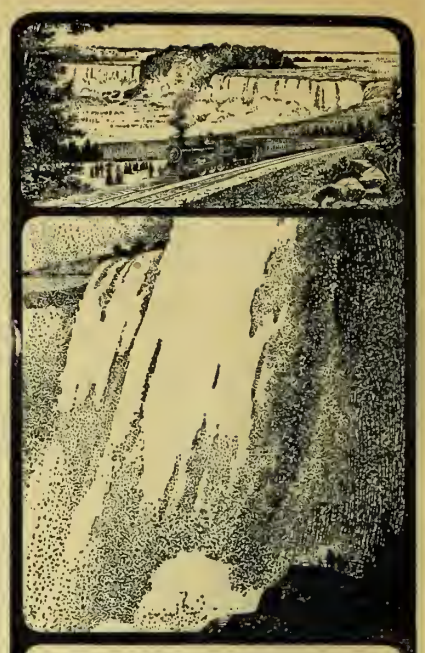
Commission Men to Meet.

The eleventh annual meeting of the National League of Commission Merchants of the United States will be held at the Auditorium, Chicago, Ill., at 10 a. m., January 14-15-16, 1903, for the election of officers and the transaction of any business that may properly come before the meeting. An invitation is extended to the officers and members of all associations interested in, and to the shippers of fruits, vegetables, dairy products, poultry and eggs, to attend and become acquainted with our members. Representatives of fruit, dairy and trade papers are invited to be present. Convention rates of fare and one-third will be granted if one hundred persons attending produce certificates, which can be procured at all leading railway stations and must be obtained when buying ticket.

W. S. MITCHELL,
President.

Morrill & Morley, Benton Harbor, Mich., makes the Eclipse Spray Pumps and are advertising them elsewhere in this issue. It is interesting and it gives one confidence in their goods to know that this firm were originally, as they still are, one of the largest growers of fruit in this famous section, and in using the best spraying apparatus obtainable at that time, found all open to objection as not doing perfect work. They set to work and made a machine after their own ideas which gave such satisfaction that neighboring growers insisted on duplicate outfits. Actual tests by the most practical people in the country has developed a high degree of efficiency in the Eclipse and has made its makers one of the largest manufacturers of spraying machinery in the country.

Write for their catalogue which embodies valuable information about spraying and mention seeing their ad in this paper.



Michigan Central

"The Niagara Falls Route"

FOUR FAST TRAINS

Daily in both directions between Chicago and Detroit and Buffalo, New York, Boston and Eastern points with finest through Sleeping, Dining and Buffet Library Cars. All day trains stop five minutes at Falls View, directly overlooking the great cataract.

Send 6 cents postage for NIAGARA FALLS ILLUSTRATED.

O. W. RUGGLES, G. P. & T. Agt., CHICAGO, ILL.

Wabash Railroad

OFFERS

Half Fare So

(Plus $2.00)

One Way or Round Trip

The Wabash R. R. will sell tickets to many points in the South and Southeast at above rate on the first and third Tuesdays of each month. Tickets sold daily to all the winter resorts of the South at greatly reduced rates.

Only one business day en route Kansas City to New York and Boston via WABASH train No. 8; leave Kansas City 6:15 p. m. daily, arrive New York 7:45 a. m. and Boston 10:10 a. m. second morning.

Ask your ticket agent to route you via Wabash R. R., or for rates and descriptive matter call at Wabash corner, 1601 Farnam street, or address,

HARRY B. MOORES,
Genl. Agt. Pass. Dept.,
Omaha, Neb.

Special Offer Free

To Western Fruit-Grower Readers:
A special arrangement has been made with the MISSOURI VALLEY FARMER by which that excellent publication can be obtained ONE YEAR FREE by readers ot The Western Fruit-Grower. The Missouri Valley Farmer is one of the best farm papers in the West, and will tell you more about agriculture and live stock conditions in the great Southwest than any other publication. It is filled with up-to-date reading matter in the breezy style of the West. The publishers have generously offered to send The Farmer a whole year absolutely free to any reader of The Fruit-Grower who will send them Ten Cents, which barely pays cost of mailing. Regular subscription price, 50 cents. The offer must be accepted within four weeks, and under no circumstance will the offer hold good unless it is stated in your letter that you are a reader of The Fruit-Grower. Address

Missouri Valley Farmer, Topeka, Ks.

35,000 Apple Trees

One and two year; very cheap; all leading varieties. You will find my stock cheapest in price, but highest in quality. Try me with an order. T. J. ANDERSON, Temple, Ga.

DO YOU SCRATCH?

Eczema, Itching Skin Diseases Cured. I discovered a method that permanently cures all skin diseases. I succeed when others fail. Trial treatment and testimonials sent for six cents. W. BULLARD, 323 Theodore Street, Detroit, Mich.

Notes from Indian Territory.

It seems strange to see so much talk in the Western Fruit-Grower about blight in pear and apple. My pear trees are all free from blight. I have never seen any blight in apple trees in this section of the country, and I have been here for twenty years. The Leconte and Bartlett pears blight to death here, but there is no blight so far on my Garber, Keiffer or Duchess, or any other kind I have. I have no Bartlett or Leconte, but see them all over the country blighted to death at from ten to twelve years old. At some time they bore well.

Most planters say, plant but few kinds of apples or other fruits. I think this wrong, as some kinds will bear while others fail. Our old standby, Ben Davis, failed this year, or nearly failed, and Missouri Pippin was full of apples. Nearly all kinds failed here except the Missouri Pippin and Arkansas Black and the Winesap. I have all the leading kinds planted, of summer, fall and winter kinds, and will have apples every year. I also have all the leading kinds of peaches, from the Sneed to the October kinds. I have fifteen kinds of plums, different kinds of blackberries and raspberries; I have eight different kinds of pears, nearly all kinds of mulberries and six kinds of apricots. I have some of all the new kinds of fruits that have been found to be good. I take great pride in my fruit trees and shade trees, and the Western Fruit-Grower tells me how to take the best care of them. I like Major Holsinger's department very much, as also Professor Howard's in the Questions and Answers department.

I planted peach trees last year and budded them in August of the same year. Now I have trees that came from the buds last spring five to eight feet high and well branched, finer than I ever saw from any nurseries; but I have them for my own use, not to sell. I will never buy any more peach trees, as it is so easy to raise trees and so much cheaper. I have all the leading kinds and can get finer trees from my own budding than I can buy. Saves money in trees, freight and time, and I know just what I have got. I budded some apricots on the peach seedlings, but they all died in bud. I budded some Gold plums and Wickson plums in peach seedlings and some of them lived and are from three to six feet high. I budded a lot more peaches this year. Four years ago I planted some peach seed from the Alexander peach, and this year they were full of fine peaches; some were very early, but most of them ripened in August. All were freestones but two, which were clings. I have twenty-five of them in all, and they are all good, large, peaches. I keep wood ashes around my trees, and I am not troubled with worms of any kind. I planted out seventy-four peach trees three years ago from a certain nursery, and half of them are seedlings of no value at all. They were all full of peaches this year, but half the trees had such small, wormy fruit on them that they were not used. Will have to grub them up and re-set some in their places. They have fine wirey limbs, while those that had good peaches on them had large, short limbs and larger leaves.

Success to the Western Fruit-Grower. S. J. HOWARD.

Afton, I. T.

How to Make Cider Vinegar.

Would you not give in your paper a plan for construction of a hopper for making refuse apples into vinegar? It may be simple to do it, but I am a beginner. I have heard of some who easily turn all the rotting fruit into vinegar that way, by use of a hopper; but not having seen one or what is put in, I would like to know what material is used for quick results and what is used to keep the stuff from clogging together so that the liquid cannot well get through—also for filtering and thus clearing cider vinegar into a clear color. One merchant here told me that he buys pure cider vinegar, factory made, because all the vinegar from fruit growers at home is more or less cloudy, and not so cheap.

I am informed of one fruit grower, east of here, near California, Mo., who turns all his waste apples into vinegar by using a hopper and with some process (mother vinegar or whatever else); it comes out vinegar, and that in this way he does well and without much delay with the waste apples. The difficulty in my mind is what he put in to keep the rotting fruit apart and loose enough to allow the flow to penetrate through and not stop up. Has your paper ever had any description or experience of some one on this line? If so, would you kindly send me a copy of it; if not, I would be pleased, either direct or through your valued paper, to get some information. This may be a simple thing, but I have had no experience and am young in the fruit business.

ROBERT GROSSER.

Centerview, Mo.

Replying to the foregoing, we will say that there has never been a good article published in the Fruit-Grower, we believe, on making good cider vinegar. The process of making good cider vinegar is not an easy one, and there are very few orchardists who make it profitably. Good vinegar is in demand, but it seems to take a long time to get it properly made, and when placed on the market it must compete with the cheaper adulterated vinegars, and the business is not thought by orchardists to be profitable. The Fruit-Grower would like to have some one who has had experience answer the queries in the above.

AGRICULTURAL CHEMICALS AND FERTILIZERS—The ammonia market is steady and firm. Continued inquiries from the south are being reported, but the business as yet has not developed very large proportions. Nitrates are inclined to be stiff, but quotations are generally unchanged. The demand for fish scrap and dried blood continues active, while the supply is not large.

AMMONIATES.

Nitrate of soda, spot, per 100 lbs.	$ 2.05	@ ....
Nitrate of soda, futures, per 100 lbs.	1.95	@ ....
Cottonseed meal per ton, c. i. f. N. Y.	27.00	@28.00
Sulph. ammonia, spot	2.97½	@ 3.00
Sulph. ammonia, shipment	2.95	@ 2.97½
Dried blood, N. Y., low grades	2.45	@ 2.47½
Dried blood, Western, high grade fine ground	2.57	@ 2.60
Fish scrap, at New York	2.55	and 10c
Tankage, per unit	2 55	@2.60 and 10c

PHOSPHATES.

Acid Phosphate, per unit	55	@ 60
Bone black, spot, per ton	16.00	@17.00
Ground bone, per ton	21.00	@23.50
S. C. phosphate rock, ground, per 2,000 lbs.	5.00	@ 5.50
S. C. phosphate rock, undried, f.o.b. Ashley River, 2,400 lbs	3.00.	@ 3.25
S. C. Phosphate Rock, dried, f. o. b. Ashley River, 2400 lbs	3.25	@ 3.50
Florida, high grade phosphate rock, f.o.b. Fernandina, pr ton	6.50	@ 7.00
Florida land pebble phosphate rock, f.o.b. Fernandina, pr ton	4.00	@ 4.50
Tennessee phosphate, f. o. b. Mt. Pleasant, domestic	3.25	@ 3.50
do do do foreign	3.75	@ 4.00

POTASH.

Kainit, future shipment, per ton	9.05	@ ....
Keiseret, future shipment, pr ton	7.35	@ 7.50
Mur. potash, 80 p. c. future ship	1.80	@ ....
Double manure salt (48@49 p. c. less than 2½ per cent chlorine), shipment, per lb.	1.00	@ .... Basis 48 p. c.
High grade manure salt (90@93 p. c. sulphate potash,) shipment	2.08	@ ..... Basis 90 p. c.
Manure salt, in bulk, 20 per cent per unit, O. P.	.62	@ .64

IN THE INTEREST OF THE WHOLE PEOPLE.

One of the wonders of the present age to all persons unacquainted with the true conditions is the rapid growth and development of the modern mail order house. If only the proposition could be better understood it would occasion no wonder. The object sought to be attained is so commendable and so worthy that it has met with the entire approval of the public.

That is so because the mail order house sells everything anybody could possibly want, giving the largest possible selection and at prices which mean a saving to any purchaser. We must admit to some surprise, however, at the very rapid growth of our advertising patrons the Marvin Smith company, of Chicago. This is evidenced by their large new catalogue which is a bound volume of 433 pages and cover, and contains literally thousands of cuts, diagrams and illustrations of the goods carried by this young but large, enterprising and reliable house. Under their recent spread and development which has compelled the doubling of their space they have inaugurated twenty-one distinct departments of business.

Our readers will remember the Marvin Smith Company as having been the largest exclusive farm implement house in the country. Their well-known reliability and responsibility in this direction induced their many friends and patrons to write them from all sections of the country, sending in orders for goods which they did not then carry. It was this constant demand which induced them to add departments of hardware, tools, builders' supplies, builders hardware, gentlemen's clothing, all kinds of hosiery, all kinds of underwear, gloves and mittens, cook stoves, ranges and heaters, sewing machines, tin and enamel ware of all kinds, lanterns, household supplies, trunks, valises, etc.

In looking over the catalogue one cannot help express both surprise and wonder at the remarkably reasonable prices at which the various articles are sold. For instance, take their new High Art Colonial Cabinet, Ball-bearing Sewing Machine. The price is only $18.95, a much better machine in every way than we had to pay $35 to $40 for elsewhere.

There are also a world of housekeeping appliances and conveniences at equally reasonable prices and of equally high quality. Take for instance a Dietz Star Tubular lantern—everybody knows what that is—for only 45 cents. It is no wonder that 7,000 of these were sold last year. A six-hole steel range, full nickle trimmed, with high warming closet tea pot shelves, broiler, feed door, duplex grate, large water reservoir, latest and best dampers, clean out doors, etc., for only $27.30. Just such a range as one would have to pay $45 for under ordinary conditions. We have given only a few instances. There are hundreds of others which offer equally good advantages and opportunities to the buyer. By all means send to these people for their latest catalogue if you have not already done so. The book is almost certain to save you money on every article which you wish to buy.

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The enormous increase of our business during the last three years has compelled us to enlarge Offices, Packing-houses, etc., and increase Nursery Plants at Louisiana and Starkdale, Mo., Huntsville, Ala., Dansville and Portland, N. Y.; our orchard interests have also assumed huge proportions, all of which necessitated a proportional increase of Capital Stock.

Another New Packing House, 132x240 Feet, Now in Course of Erection.

APPLE: The largest and FINEST stock of both 1-yr. and 2-yr. trees ever grown in the U. S. We are headquarters for all the leading market sorts and **SOLE OWNERS** of **BLACK BEN DAVIS** (Registered Trade-Mark No. 38,556) and **CHAMPION** (Registered Trade-Mark No. 32,184), the **TWO GREATEST MONEY-MAKERS** known to-day.

PEAR, Standard: Leading sorts, including Fame, Alamo, Ozark, Kieffer, Lincoln (true Lincoln of Ill.), Garber, Bartlett, etc. **Dwarf:** Duchess, Anjou, Howell, Fame, Bartlett, and others **—extra fine trees.**

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CHERRY: One of the SUREST crops that can be grown, and one that always brings good returns. First-class trees of such varieties as Dyehouse, Early Richmond, Montmorency (true), Eng. Morello, Suda, etc., will be scarce; orders should be placed at once.

APRICOT: Sunrise and **Superb,** the only two varieties worth planting east of the Rocky Mountains. Also American Seedling, from which some good sorts should come; these are worthy of **trial.**

SMALL FRUITS: Leading Sorts for home use and market—**London Market** Currant, Houghton Gooseberry and **Cumberland** Raspberry are sorts that should be **largely planted.** Lucretia Dewberry is the best **payer.**

ELBERTA PEACH: Planters of **ELBERTA** should place orders at once as the call for this **greatest of all market peaches** is unprecedented. All the leading varieties of Peach are in great demand and only our immense stock of several million trees enables us to still offer Elberta and other leading market sorts.

☞ Owing to the great scarcity, planters will find it to their advantage to purchase their Elberta of **thoroughly responsible** nurseries only. To our personal knowledge assorted peaches are being purchased by many irresponsible parties with which **to fill Elberta orders.**

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